No. 126, Original

In The

Supreme Court of the United States

STATE OF KANSAS,

Plaintiff,

v.

STATE OF NEBRASKA

and

STATE OF COLORADO,

Defendants.

BEFORE THE HONORABLE VINCENT L. MCKUSICK
SPECIAL MASTER

FINAL SETTLEMENT STIPULATION
VOLUME 1 OF 5

December 15, 2002

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FINAL SETTLEMENT STIPULATION

The States of Kansas, Nebraska and Colorado, hereby enter into this Final Settlement Stipulation as of December 15, 2002:

I. General

A. The States agree to resolve the currently pending litigation in the United States Supreme Court regarding the Republican River Compact by means of this Stipulation and the Proposed Consent Judgment attached hereto as Appendix A.

B. The States agree to undertake the obligations set forth in this Stipulation. The States shall implement the obligations and agreements in this Stipulation in accordance with the schedule attached hereto as Appendix B.

C. Upon the Court's approval of this Stipulation and entry of the Proposed Consent Judgment, the States agree that all claims against each other relating to the use of the waters of the Basin pursuant to the Compact with respect to activities or conditions occurring before December 15, 2002, shall be waived, forever barred and dismissed with prejudice. These claims shall include all claims for Compact violations, damages, and all claims asserted or which could have been asserted in the pending proceeding, No. 126, Original.

D. With respect to activities or conditions occurring after December 15, 2002, the dismissal will not preclude a State from seeking enforcement of the provisions of the Compact, this Stipulation and the Proposed Consent Judgment. Nor will the dismissal preclude any State in such future action from asserting any legal theories it raised in the present proceeding, or any other legal theories,

with respect to activities or conditions occurring after the date of such dismissal. The States agree that this Stipulation and the Proposed Consent Judgment are not intended to, nor could they, change the States' respective rights and obligations under the Compact. The States reserve their respective rights under the Compact to raise any issue of Compact interpretation and enforcement in the future.

E. Specific information-sharing requirements are set forth in the RRCA Accounting Procedures, attached hereto as Appendix C. The States will provide each other with the opportunity to inspect and copy their records pertaining to water use in the Basin, other than privileged materials, upon request. The States will cooperate in arranging verification as reasonably necessary.

F. The RRCA may modify the RRCA Accounting Procedures, or any portion thereof, in any manner consistent with the Compact and this Stipulation.

G. Headings in this Stipulation are provided for convenience only and shall not affect the substance of any provision.

H. This Stipulation supersedes the Settlement Principles signed by the States on April 30, 2002.

I. The provisions of Subsection IV.C. relating to the development of the RRCA Groundwater Model shall be in effect and enforceable between December 15, 2002 and July 1, 2003 or until the Court's approval or disapproval of this Stipulation, whichever is later.

J. Within six months of the final dismissal of this case, the RRCA shall revise its existing rules and regulations as necessary to make them consistent

with this Stipulation and the RRCA Accounting Procedures.

II. Definitions

Wherever used in this Stipulation the following terms are defined as:

Acre-foot: The quantity of water required to cover an acre to the depth of one foot, equivalent to forty-three thousand, five hundred sixty (43,560) cubic feet;

Actual Interest: A State will be deemed to have an actual interest in a dispute if resolution of the dispute could require action by the State, result in increasing or decreasing the amount of water available to a State, affect the State's ability to monitor or administer water use or water availability, or increase the State's financial obligations;

Addressed by the RRCA: A matter is deemed to be addressed by the RRCA when the RRCA has taken final action by vote on such request or failed to take action by vote on the request after a Reasonable Opportunity to investigate and act on the request;

Allocation(s): The water supply allocated to each State from the Computed Water Supply;

Annual: As defined in the RRCA Accounting Procedures Section II;

Basin: Republican River Basin as defined in Article II of the Republican River Compact;

Beneficial Consumptive Use: That use by which the Water Supply of the Basin is consumed through the activities of man, and shall include

water consumed by evaporation from any reservoir, canal, ditch, or irrigated area;

Compact: The Republican River Compact, Act of February 22, 1943, 1943 Kan. Sess. Laws 612, codified at Kan. Stat. Ann. § 82a-518 (1997); Act of February 24, 1943, 1943 Neb. Laws 377, codified at 2A Neb. Rev. Stat. App. § 1-106 (1995), Act of March 15, 1943, 1943 Colo. Sess. Laws 362, codified at Colo. Rev. Stat. §§ 37-67-101 and 37-67-102 (2001); Republican River Compact, Act of May 26, 1943, ch. 104, 57 Stat. 86;

Computed Beneficial Consumptive Use: The stream flow depletion resulting from the activities of man as listed in the definition of Computed Beneficial Consumptive Use in the RRCA Accounting Procedures Section II;

Computed Water Supply: As defined in the RRCA Accounting Procedures Section II;

Conservation Committee: The conservation measures study committee established in Subsection VI.B.1;

Court: The United States Supreme Court;

Designated Drainage Basins: The drainage basins of the specific tributaries and Main Stem of the Republican River as described in Article III of the Compact;

Dewatering Well: A Well constructed solely for the purpose of lowering the groundwater elevation;

Federal Reservoirs: Bonny Reservoir, Swanson Lake, Enders Reservoir, Hugh Butler Lake, Harry Strunk Lake, Keith Sebelius Lake, Harlan County Lake, Lovewell Reservoir;

Flood Flows: The amount of water deducted from the Virgin Water Supply as part of the computation of the Computed Water Supply due to a flood event as determined by the methodology described in the RRCA Accounting Procedures, Subsection III.B.1.;

Guide Rock: A point at the Superior-Courtland Diversion Dam on the Republican River near Guide Rock, Nebraska; the Superior-Courtland Diversion Dam gage plus any flows through the sluice gates of the dam, specifically excluding any diversions to the Superior and Courtland Canals, shall be the measure of flows at Guide Rock;

Historic Consumptive Use: That amount of water that has been consumed under appropriate and reasonably efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use was lawfully made;

Imported Water Supply: The water supply imported by a State from outside the Basin resulting from the activities of man;

Imported Water Supply Credit: The accretions to stream flow due to water imports from outside of the Basin as computed by the RRCA Groundwater Model. The Imported Water Supply Credit of a State shall not be included in the Virgin Water Supply and shall be counted as a credit/offset against the Computed Beneficial Consumptive Use of that State's Allocation, except as provided in Subsection V.B.2. of this Stipulation and Subsections III.I. – J. of the RRCA Accounting Procedures;

Main Stem: The Designated Drainage Basin identified in Article III of the Compact as the

North Fork of the Republican River in Nebraska and the main stem of the Republican River between the junction of the North Fork and the Arikaree River and the lowest crossing of the river at the Nebraska-Kansas state line and the small tributaries thereof, and also including the drainage basin Blackwood Creek;

Main Stem Allocation: The portion of the Computed Water Supply derived from the Main Stem and the Unallocated Supply derived from the Sub-basins as shared by Kansas and Nebraska;

Modeling Committee: The joint groundwater modeling committee established in Subsection IV.C.;

Moratorium: The prohibition and limitations on construction of new Wells in the geographic area described in Section III;

Non-Federal Reservoirs: Reservoirs other than Federal Reservoirs that have a storage capacity of 15 Acre-feet or greater at the principal spillway elevation;

Northwest Kansas: Those portions of the Subbasins within Kansas;

Proposed Consent Judgment: The document attached hereto as Appendix A;

Reasonable Opportunity: The RRCA will be deemed to have had a reasonable opportunity to investigate and act on a regular request when, at a minimum, the issue has been discussed at the next regularly scheduled annual meeting. If the RRCA agrees that an issue requires additional investigation, the RRCA may specify a period of time that constitutes a reasonable opportunity for

completion of such investigation and final action on the particular issue. The RRCA will be deemed to have had a reasonable opportunity to investigate and act on a "fast-track" request when the issue has been discussed at a meeting of the RRCA no later than 30 days after the "fast-track" issue has been raised. If the RRCA agrees that a "fast track" issue requires additional investigation, the RRCA may specify a period of time that constitutes a reasonable opportunity for completion of such investigation and final action on the particular issue;

Replacement Well: A Well that replaces an existing Well that a) will not be used after construction of the new Well and b) will be abandoned within one year after such construction or is used in a manner that is excepted from the Moratorium described in Subsections III.B.1.c.- f. of this Stipulation;

RRCA: The Republican River Compact Administration, the administrative body composed of the State officials identified in Article IX of the Compact;

RRCA Accounting Procedures: The document titled "The Republican River Compact Administration Accounting Procedures and Reporting Requirements" and all attachments thereto, attached hereto as Appendix C;

RRCA Groundwater Model: The groundwater model developed under the provisions of Subsection IV.C. of this Stipulation;

State: Any of the States of Colorado, Kansas and Nebraska;

States: The States of Colorado, Kansas and Nebraska;

Stipulation: This Final Settlement Stipulation to be filed in *Kansas v. Nebraska and Colorado*, No. 126, Original, including all Appendices attached hereto;

Sub-basin: Any of the Designated Drainage Basins, except for the Main Stem, identified in Article III of the Compact;

Submitted to the RRCA: A matter is deemed to have been submitted to the RRCA when a written statement requesting action or decision by the RRCA has been delivered to the other RRCA members by a widely accepted means of communication and receipt has been confirmed;

Test hole: A hole designed solely for the purposes of obtaining information on hydrologic and/or geologic conditions;

Trenton Dam: The dam located at 40 degrees, 10 minutes, 10 seconds latitude and 101 degrees, 3 minutes, 35 seconds longitude, approximately two and one-half miles west of the town of Trenton, Nebraska;

Unallocated Supply: The "water supplies of upstream basins otherwise unallocated" as set forth in Article IV of the Compact;

Upstream of Guide Rock, Nebraska: Those areas within the Basin lying west of a line proceeding north from the Nebraska-Kansas state line and following the western edge of Webster County, Township 1, Range 9, Sections 34, 27, 22, 15, 10 and 3 through Webster County, Township 2, Range 9, Sections 34, 27 and 22; then proceeding west along the southern edge of Webster

County, Township 2, Range 9, Sections 16, 17 and 18; then proceeding north following the western edge of Webster County, Township 2, Range 9, Sections 18, 7 and 6, through Webster County, Township 3, Range 9, Sections 31, 30, 19, 18, 7 and 6 to its intersection with the northern boundary of Webster County. Upstream of Guide Rock, Nebraska shall not include that area in Kansas east of the 99° meridian and south of the Kansas-Nebraska state line. Attached to this Stipulation in Appendix D is a map that shows the areas upstream of Guide Rock, Nebraska. In the event of any conflict between this definition and Appendix D, this definition will control;

Virgin Water Supply: The Water Supply within the Basin undepleted by the activities of man.

Water Supply of the Basin or **Water Supply within the Basin**: The stream flows within the Basin, excluding Imported Water Supply;

Well: Any structure, device or excavation for the purpose or with the effect of obtaining groundwater for beneficial use from an aquifer, including wells, water wells, or groundwater wells as further defined and used in each State's laws, rules, and regulations.

III. Existing Development

A. Moratorium on New Wells

1. Except as provided below, the States hereby adopt a prohibition on the construction of all new Wells in the Basin upstream of Guide Rock, Nebraska (hereinafter "Moratorium"). The Moratorium may be modified, in whole or in part, by the RRCA if it determines that new information demonstrates that additional

groundwater development in all or any part of the Basin that is subject to the Moratorium would not cause any State to consume more than its Allocations from the available Virgin Water Supply as calculated pursuant to Section IV of this Stipulation. New information shall mean results from the RRCA Groundwater Model or any other appropriate information. Attached hereto in Appendix E, are such laws, rules and regulations in Nebraska concerning the prohibition on construction of new Wells in the Basin.

2. Nothing in this Stipulation, and specifically this Subsection III.A., shall extend the Moratorium or create an additional Moratorium in any of the States in any other river basin or in any other groundwater supply located outside of the Basin.

3. Notwithstanding the provision in Subsection III.A.1. of this Stipulation permitting the RRCA to modify the prohibition on construction of new Wells, the States will not increase the level of development of Wells as of July 1, 2002 in the following Designated Drainage Basins, subject to the exceptions set forth in Subsection III.B.1-2.:

North Fork of the Republican River in Colorado
Arikaree River
South Fork of the Republican River
Buffalo Creek
Rock Creek
That portion of the North Fork and Main Stem of the Republican River in Nebraska that lies upstream of Trenton Dam.

Any of the States may seek to amend this provision of this Stipulation by making application to the Court upon any change in conditions making modification of this Subsection III.A.3. necessary or appropriate.

B. Exceptions to Moratorium on New Wells

1. The Moratorium shall not apply to the following:

a. Any and all Wells in the Basin located within the current boundaries of the following Natural Resource Districts in Nebraska:

i. The Tri-Basin Natural Resource District;

ii. The Twin Platte Natural Resource District; and

iii. The Little Blue Natural Resource District.

Attached to this Stipulation in Appendix D is a map that shows the areas described in this Subsection III.B.1.a. In the event of any conflict between this Subsection and Appendix D, this Subsection will control;

b. Any and all Wells in the Basin in Nebraska located in the following described areas:

i. Lincoln County, Township 9, Range 27, Sections 5-7;

ii. Lincoln County, Township 9, Range 28, Sections 1-23, 28-30;

iii. Lincoln County, Township 9, Range 29, Sections 1-18, 21-26;

iv. Lincoln County, Township 9, Range 30, Sections 1-6, 8-13;

v. Lincoln County, Township 9, Range 31, Sections 1-2;

vi. Lincoln County, Township 10, Range 27, Sections 19-24, 27-33;

vii. Lincoln County, Township 10, Range 28, Sections 1-36;

viii. Lincoln County, Township 10, Range 29, Sections 1-36;

ix. Lincoln County, Township 10, Range 30, Sections 1-36;

x. Lincoln County, Township 10, Range 31, Sections 1-18, 20-27 and 34-36;

xi. Lincoln County, Township 10, Range 32, Sections 1-4 and 10-13;

xii. Lincoln County, Township 11, Range 28, Sections 28-35;

xiii. Lincoln County, Township 11, Range 29, Sections 19-36;

xiv. Lincoln County, Township 11, Range 30, Sections 19-36;

xv. Lincoln County, Township 11, Range 31, Sections 19-36;

xvi. Lincoln County, Township 11, Range 32, Sections 19-36;

xvii. Lincoln County, Township 11, Range 33, Sections 19-30, 32-36;

xviii. Lincoln County, Township 11, Range 34, Sections 21-27;

xix. Frontier County, Township 6, Range 24, Sections 1-36;

xx. Frontier County, Township 7, Range 24, Sections 1-36; and,

xxi. Frontier County, Township 8, Range 24, Sections 19-21 and 27-36.

Attached to this Stipulation in Appendix D is a map that shows the areas described in this Subsection III.B.1.b. In the event of any conflict between this Subsection and Appendix D, this Subsection will control.

c. Test holes;

d. Dewatering Wells with an intended use of one year or less;

e. Wells designed and constructed to pump fifty gallons per minute or less, provided that no two or more Wells that pump fifty gallons per minute or less may be connected or otherwise combined to serve a single project such that the collective pumping would exceed fifty gallons per minute;

f. Wells designed and constructed to pump 15 Acre-feet per year or less, provided that no two or more Wells that pump 15 Acre-feet per year or less may be connected or

otherwise combined to serve a single project such that the collective pumping would exceed 15 Acre-feet per year;

g. Replacement Wells, subject to all limitations or permit conditions on the existing Well, or in the absence of any limitation or permit condition only if the Beneficial Consumptive Use of water from the new Well is no greater than the Historic Consumptive Use of water from the Well it is to replace. Nebraska will calculate Historic Consumptive Use in the manner proposed in Appendix F. Nebraska shall not change its proposed method of calculating Historic Consumptive Use before providing notice to the RRCA;

h. Wells necessary to alleviate an emergency situation involving the provision of water for human consumption or public health and safety;

i. Wells to which a right or permit is transferred in accordance with state law, provided however, that the new Well:

(i) consumes no more water than the Historic Consumptive Use of water under the right or permit that is being transferred; and

(ii) is not a transfer of a right or permit that would cause an increased stream depletion upstream of Trenton Dam.

Nebraska will calculate Historic Consumptive Use in the manner proposed in Appendix F. Nebraska shall not change

its proposed method of calculating Historic Consumptive Use before providing notice to the RRCA;

j. Wells for expansion of municipal and industrial uses. Any new Wells for these purposes shall be counted against the State's Allocation and, to the extent a State is consuming its full Allocation, other uses shall be reduced to stay within the State's Allocation; and

k. Wells acquired or constructed by a State for the sole purpose of offsetting stream depletions in order to comply with its Compact Allocations. Provided that, such Wells shall not cause any new net depletion to stream flow either annually or long-term. The determination of net depletions from these Wells will be computed by the RRCA Groundwater Model and included in the State's Computed Beneficial Consumptive Use. Augmentation plans and related accounting procedures submitted under this Subsection III.B.1.k. shall be approved by the RRCA prior to implementation.

2. The Moratorium shall not apply to nor create any additional limitations on new Wells in Northwest Kansas and Colorado in the Basin other than those imposed by state laws, rules and regulations in existence as of April 30, 2002. Provided however, that the Historic Consumptive Use of a Well in Colorado or Northwest Kansas that is or would have been accounted for in Compact accounting as a stream depletion reaching the Republican River downstream of Trenton Dam may not

be transferred to a Well that would cause a depletion reaching the Republican River upstream of Trenton Dam. Further, neither Colorado nor Kansas shall change their laws, rules or regulations in existence as of April 30, 2002, to the extent that such changes would result in restrictions less stringent than those set forth in Subsection III.B.1. above. Attached hereto in Appendices G and H, respectively, are such laws, rules and regulations in Northwest Kansas and Colorado in existence as of April 30, 2002.

C. Surface Water Limitations

Each of the States has closed or substantially limited its portion of the Basin above Hardy, Nebraska to new surface water rights or permits. Each State agrees to notify each Official Member of the RRCA and the U. S. Bureau of Reclamation at least 60 days prior to a new surface water right or permit being granted or prior to adopting changes to its current restrictions related to granting new surface water rights or permits in the Basin above Hardy, Nebraska and provide the RRCA an opportunity for discussion. Each State, however, reserves the right to allow new surface water rights or permits to use additional surface water if such use can be made within the State's Compact Allocation.

D. Reporting

Beginning on April 15, 2003, or such other date as may be agreed to by the RRCA and on the same date each year thereafter, each State will provide the other States with an annual report for the previous year of all Well construction in the State within the Basin Upstream of Guide Rock, Ne-

braska and all denials of Well permits or other requests for Well construction. The report shall include such information as required by the RRCA Accounting Procedures, Section V.

IV. Compact Accounting

A. The States will determine Virgin Water Supply, Computed Water Supply, Allocations, Imported Water Supply Credit, augmentation credit and Computed Beneficial Consumptive Use based on a methodology set forth in the RRCA Accounting Procedures, attached hereto as Appendix C.

B. Water derived from Sub-basins in excess of a State's specific Sub-basin Allocations is available for use by each of the States to the extent that:

1. such water is physically available;

2. use of such water does not impair the ability of another State to use its Sub-basin Allocation within the same Sub-basin;

3. use of such water does not cause the State using such water to exceed its total statewide Allocation; and

4. if Water-Short Year Administration is in effect, such use is consistent with the requirements of Subsection V.B.

C. Determination of stream flow depletions caused by Well pumping and determination of Imported Water Supply Credit will be accomplished by the RRCA Groundwater Model as used in the RRCA Accounting Procedures.

1. Stream flow depletions caused by Well pumping for Beneficial Consumptive Use will be included in the determination of Virgin Wa-

ter Supply, Computed Water Supply, Allocations and Computed Beneficial Consumptive Use in accordance with the formulas in the RRCA Accounting Procedures provided that the RRCA may agree to exclude from such accounting minimal stream flow depletions. Stream flow depletions caused by Well pumping for Beneficial Consumptive Use will be counted as Virgin Water Supply and Computed Beneficial Consumptive Use at the time and to the extent the stream flow depletion occurs and will be charged to the State where the Beneficial Consumptive Use occurs.

2. The States agree to devote the necessary time and resources, subject to legislative appropriations, to complete the RRCA Groundwater Model in consultation with the appropriate United States agencies.

3. The States have created a Modeling Committee, comprised of members designated by the States and the United States. Each State may appoint at least one member but no more than three to the Modeling Committee. The United States may designate no more than two representatives to the Modeling Committee. The Modeling Committee shall develop a groundwater model acceptable to the States to accomplish the purposes set forth in this Subsection IV.C. The meetings and other work of the Modeling Committee shall be subject to the Confidentiality Agreement dated October 19, 2001, signed by the States and the United States, attached hereto as Appendix I.

Nothing in this Stipulation shall be construed as limiting the attendance and observation by non-member representatives of the participants at any meeting of the Modeling Committee or participation by non-members in the independent work of the States and United States representatives.

4. The States and the United States have agreed to freely and immediately share all available data, information, expert knowledge, and other information necessary for the Modeling Committee to complete the modeling work as requested by any member of the Modeling Committee. Data and information is considered to be "available" if it is not otherwise privileged and is (1) used by a State in the modeling process, or (2) is in the possession or control of a State, including its political subdivisions, in the form that the information exists at the time of the request. Data and information "necessary to complete the modeling work" also includes any available information to verify any other data and information. Shared information shall be subject to the Confidentiality Agreement dated October 19, 2001, signed by the States and the United States.

5. If at any time, the members of the Modeling Committee cannot reach agreement on necessary modifications to the RRCA Groundwater Model or any other issues, the Modeling Committee shall report the nature of the dispute to the States promptly and the States shall resolve the dispute as soon as possible.

6. The structure of the RRCA Groundwater Model, together with agreed upon architecture,

parameters, procedures and calibration targets as of November 15, 2002, are described in the memorandum attached hereto as Appendix J.

7. The Modeling Committee shall submit the RRCA Groundwater Model to the States in final form with sufficient time for the States to review and agree to the RRCA Groundwater Model by July 1, 2003.

8. Upon agreement by the States to the RRCA Groundwater Model, the States, through the RRCA, shall adopt the RRCA Groundwater Model for purposes of Compact accounting. Following final dismissal of this case, the RRCA may modify the RRCA Groundwater Model or the associated methodologies after discussion with the U.S. Geological Survey.

9. Between December 15, 2002 and July 1, 2003, if the States are unable to agree upon the final RRCA Groundwater Model or if any disputes arise in the Modeling Committee that the States cannot resolve, the dispute will be submitted to binding expert arbitration for resolution as set forth in this Subsection IV.C.9. No State may invoke binding arbitration unless it has first raised the issue it seeks to have arbitrated in the Modeling Committee and to the States as provided for in Subsection IV.C.5. For purposes of this Subsection IV.C.9., written communications required by this Subsection IV.C.9. shall be provided by both U.S. Mail and by facsimile to both counsel of record and the Official Member of the RRCA for each State and to counsel of record for the United States.

a. Initiation: Any State may invoke binding arbitration by providing written notice to the other States on or before July 1, 2003. A copy of any notice will be provided to the United States at the same time. Notice for the purposes of this Section shall include a written description of the scope of the dispute, with sufficient detail to provide the States with an understanding of the substance of the dispute and all related issues, a description of all attempts to resolve the dispute and sufficient information for the other States to identify the technical skills that should be possessed by potential arbitrators necessary to resolve the dispute. Upon receipt of notice, each State has five business days to amend the scope of the dispute in writing to address additional issues. If unforeseen issues are identified after the deadline for amending the scope of the dispute, they may be added upon agreement of the States or at the discretion of the arbitrator.

b. Selection: Upon receipt of notice of a dispute, the States shall confer within the deadlines set forth below to choose an arbitrator(s) and the States will in good faith attempt to agree on an arbitrator(s).

    i. Within seven business days of receipt of the initial notice, each State shall submit the names of proposed arbitrators, including qualifications, to the other States. Within seven

business days of receipt of the proposed names, the States will meet, in person or by telephone conference, and confer to agree on an arbitrator(s).

ii. If the States are unable to agree on an arbitrator(s), within seven business days each State will propose an arbitrator(s), not to exceed two and shall submit the proposed names to the other States and the United States in writing within the time set forth below. Upon receipt of each State's list of proposed arbitrators, within seven business days each State will rank and comment on each proposed arbitrator and submit those comments in writing to the Special Master. The United States, as amicus, may submit rankings and comments to the Special Master. The Special Master will initially eliminate any proposed arbitrators from consideration based upon objections by any State of conflict and/or bias. If all of a State's choices are eliminated by conflict and/or bias, a State may submit the name of an additional arbitrator and each State and the United States may provide comments and objections based on conflict and/or bias within a time limit set by the Special Master.

iii. Any person submitted as a possible arbitrator by any State shall not be an employee or agent of any State,

shall be a person knowledgeable in groundwater modeling, and shall disclose any actual or potential conflict of interest and all current or prior contractual and other relationships with any person or entity who could be directly affected by resolution of the dispute. Any person who has a contractual relationship with any State shall be automatically disqualified for conflict of interest unless the other States expressly agree in writing to submission of that person's name to the Special Master. Any other contested claims of conflict or bias will be resolved by the Special Master.

iv. The Special Master will then choose an arbitrator(s) from the remaining non-conflicted choices.

c. First Arbitration Meeting: Upon selection of an arbitrator(s), the arbitrator(s) shall, within seven business days, hold an initial meeting or conference with the States and the United States, as amicus, to determine a schedule and procedures for exchange of information necessary to resolve the dispute, and for submission and resolution of the pending dispute. The arbitrator(s) may also include disputes arising under Subsection IV.C.4. The arbitrator(s) will be subject to the Confidentiality Agreement dated October 19, 2001, signed by the States and the United States.

d. Costs: The arbitrator(s)' costs shall be paid equally by the States, subject to appropriations by the States' respective legislatures. Each State and the United States, as amicus, shall bear its own costs.

e. Reporting: The arbitrator(s)' decision will be provided to the States and the United States, as amicus, within ten business days of the close of submissions to the arbitrator(s) unless otherwise shortened or extended by agreement of all of the States. The arbitrator(s)' written report of decision and findings will be submitted to the States and the United States, as amicus, within thirty days of providing the arbitrator(s)' decision.

f. Implementation: If the dispute is one involving the ongoing work of the Modeling Committee, the decision of the arbitrator(s) as to the resolution of the dispute shall be implemented by the Modeling Committee and their efforts shall proceed. If the dispute resolves the final RRCA Groundwater Model, the decision of the arbitrator(s) as to the final RRCA Groundwater Model shall be adopted by the RRCA for the purposes of Compact accounting.

D. Except as described in Subsection V.B., all Compact accounting shall be done on a five-year running average in accordance with the provisions of the RRCA Accounting Procedures, attached as Appendix C. Flood flows will be removed as specified in the RRCA Accounting Procedures.

E. The States agree to pursue in good faith, and in collaboration with the United States, system improvements in the Basin, including measures to improve the ability to utilize the water supply below Hardy, Nebraska on the main stem. The States also agree to undertake in collaboration with the United States a system operations study and after completion of the study the States will revisit the five-year running average set forth in Subsection IV.D.

F. Beneficial Consumptive Use of Imported Water Supply shall not count as Computed Beneficial Consumptive Use or Virgin Water Supply. Credit shall be given for any remaining Imported Water Supply that is reflected in increased stream flow, except as provided in Subsection V.B. Determinations of Beneficial Consumptive Use from Imported Water Supply (whether determined expressly or by implication), and any Imported Water Supply Credit shall be calculated in accordance with the RRCA Accounting Procedures and by using the RRCA Groundwater Model.

G. Measurement techniques, data collection and reporting to facilitate implementation of the Stipulation are set forth in the RRCA Accounting Procedures.

H. Augmentation credit, as further described in Subsection III.B.1.k., shall be calculated in accordance with the RRCA Accounting Procedures and by using the RRCA Groundwater Model.

V. Guide Rock

A. Additional Water Administration

1. To provide for regulation of natural flow between Harlan County Lake and Superior-Courtland Diversion Dam, Nebraska will

recognize a priority date of February 26, 1948 for Kansas Bostwick Irrigation District, which is the same priority date as the priority date held by the Nebraska Bostwick Irrigation District's Courtland Canal water right.

2. When water is needed for diversion at Guide Rock and the projected or actual irrigation supply is less than 130,000 Acre-feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in the Harlan County Lake Operation Consensus Plan attached as Appendix K to this Stipulation, Nebraska will close junior, and require compliance with senior, natural flow diversions of surface water between Harlan County Lake and Guide Rock. A description of the implementation of the water administration obligations in this Subsection V.A.2. is attached hereto as Appendix L. The RRCA may modify Appendix L in any manner consistent with this Stipulation and the Compact.

3. Nebraska will protect storage water released from Harlan County Lake for delivery at Guide Rock from surface water diversions.

4. Kansas and Nebraska, in collaboration with the United States, agree to take actions to minimize the bypass flows at Superior-Courtland Diversion Dam. A description of the process for meeting the obligations in this Subsection V.A.4. is attached hereto as Appendix L. The RRCA may modify this process in any manner consistent with this Stipulation and the Compact.

B. Water-Short Year Administration

1. Identification of Water-Short Year Administration:

a. Water-Short Year Administration will be in effect in those years in which the projected or actual irrigation supply is less than 119,000 acre feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in the Harlan County Lake Operation Consensus Plan. If system operations enhancements below Harlan County Lake increase the useable supply to the Bostwick Irrigation Districts, the trigger for Water-Short Year Administration will be adjusted as agreed to by the States and the United States in order to equitably share the benefits of such enhancements. Following the determination that Water-Short Year Administration is in effect, the States will take the actions described in Subsections V.B.2-4.

b. Each year between October 1 and June 30, the Bureau of Reclamation will provide each of the States with a monthly or, if requested by any one of the States, a more frequent update of the projected or actual irrigation supply from Harlan County Lake for that irrigation season. The determination that Water-Short Year Administration is in effect, pursuant to Subsection V.B.1.a., will become final for that year as of June 30.

2. Nebraska action in Water-Short Year Administration:

   a. During Water-Short Year Administration, Nebraska will limit its Computed Beneficial Consumptive Use above Guide Rock to not more than Nebraska's Allocation that is derived from sources above Guide Rock, and Nebraska's share of any unused portion of Colorado's Allocation (no entitlement to Colorado's unused Allocation is implied or expressly granted by this provision). To accomplish this limitation, Nebraska may use one or more of the following measures:

      i. supplementing water for Nebraska Bostwick Irrigation District by providing alternate supplies from below Guide Rock or from outside the Basin;

      ii. adjusting well allocations for alluvial Wells above Guide Rock;

      iii. adjusting multi-year well allocations for non-alluvial Wells above Guide Rock;

      iv. reducing use of storage by Nebraska Bostwick Irrigation District above Guide Rock;

      v. dry year leasing of water rights that divert at or above Guide Rock, or;

      vi. any other measures that would help Nebraska limit Computed Beneficial Consumptive Use above Guide Rock to not more than that portion

of Nebraska's allocation that is derived from sources above Guide Rock and would (1) produce water above Harlan County Lake; (2) produce water below Harlan County Lake and above Guide Rock that can be diverted during the Bostwick irrigation season; or (3) produce water that can be stored and is needed to fill Lovewell Reservoir.

b. Nebraska may offset any Computed Beneficial Consumptive Use in excess of its Allocation that is derived from sources above Guide Rock with Imported Water Supply Credit. If Nebraska chooses to exercise its option to offset with Imported Water Supply Credit, Nebraska will receive credit only for Imported Water Supply that: (1) produces water above Harlan County Lake; (2) produces water below Harlan County Lake and above Guide Rock that can be diverted during the Bostwick irrigation season; (3) produces water that can be stored and is needed to fill Lovewell Reservoir; or (4) Kansas and Nebraska will explore crediting water that is otherwise useable by Kansas.

c. During Water-Short Year Administration, Nebraska will also limit its Computed Beneficial Consumptive Use in the Sub-basins to the sum of Nebraska's specific Sub-basin Allocations and 48.9% of the sum of the Unallocated Supply from those same Sub-basins.

d. In years projected to be subject to Water-Short Year Administration, Nebraska will advise the other States and the United States no later than April 30 of measures Nebraska plans to take for that year and the anticipated water yield from those measures. In each Water-Short Year Administration year, Nebraska will advise the other States and the United States no later than June 30 of the measures it has taken or will take for the year and the anticipated water yield from those measures.

e. For purposes of determining Nebraska's compliance with Subsection V.B.2.:

   i. Virgin Water Supply, Computed Water Supply, Allocations and Computed Beneficial Consumptive Use will be calculated on a two-year running average, as computed above Guide Rock, with any Water-Short Year Administration year treated as the second year of the two-year running average and using the prior year as the first year; or

   ii. as an alternative, Nebraska may submit an Alternative Water-Short Year Administration Plan to the RRCA in accordance with the procedures set forth in Appendix M. The RRCA may modify Appendix M in any manner consistent with this Stipulation and the Compact.

f. If, in the first year after Water-Short Year Administration is no longer in effect, the Compact accounting shows that Nebraska's Computed Beneficial Consumptive Use as calculated above Guide Rock in the previous year exceeded its annual Allocation above Guide Rock, and, for the current year, the expected or actual supply from Harlan County Lake, calculated pursuant to Subsection V.B.1.a., is greater than 119,000 Acre-feet but less than 130,000 Acre-feet, then Nebraska must either make up the entire amount of the previous year's Computed Beneficial Consumptive Use in excess of its Allocation, or the amount of the deficit needed to provide a projected supply in Harlan County Lake of at least 130,000 Acre-feet, whichever is less.

g. If in any month during the year, the projected or actual irrigation supply from Harlan County Lake is equal to or greater than 119,000 Acre-feet, Nebraska may, at its discretion, cease the administrative action called for in this agreement in Subsection V.B.2.a.; provided, however, that any Alternative Water-Short Year Administration Plan shall be subject to the requirements set forth in Appendix M.

3. Colorado action: In those years when Water-Short Year Administration is in effect, Colorado agrees to limit its use of the flexibility identified in Subsection IV.B., to the extent that any portion of Colorado's Allocation from

Beaver Creek cannot be used on any other Sub-basin in Colorado.

4. Northwest Kansas action: In those years when Water-Short Year Administration is in effect, Kansas agrees to (1) measure compliance in Northwest Kansas on a two-year average, using the current and the previous year, and (2) limit Computed Beneficial Consumptive Use in the Sub-basins to the sum of Kansas' specific Sub-basin Allocations and 51.1% of the sum of the Unallocated Supply from those same Sub-basins and 51.1% of any unused portion of Colorado's Allocation (no entitlement to Colorado's unused Allocation is implied or expressly granted by this provision), or determine compliance in such other manner as agreed to by the RRCA.

VI. Soil and Water Conservation Measures

A. For the purposes of Compact accounting the States will calculate the evaporation from Non-Federal Reservoirs located in an area that contributes run-off to the Republican River above Harlan County Lake, in accordance with the methodology set forth in the RRCA Accounting Procedures.

B. In order to attempt to develop information that may allow the States to assess the impacts of Non-Federal Reservoirs and land terracing on the water supply and water uses within the Basin, the States agree to undertake a study, in cooperation with the United States, of the impacts of Non-Federal Reservoirs and land terracing on the Virgin Water Supply.

1. The States, in cooperation with the United States, shall form a committee by January

31, 2003, to be known as the Conservation Committee. By April 30, 2004, the Conservation Committee will:

a. Evaluate the available methods and data relevant to studying the impacts of Non-Federal Reservoirs and land terracing practices on water supplies, including a review of any existing studies and their applicability to the Basin;

b. Determine the general types of data that are available and relevant to the study;

c. Determine the availability of data throughout the Basin, and assess the level of accuracy and precision of the data;

d. Agree on standards for data;

e. Identify additional data necessary to determine the quantitative effects of Non-Federal Reservoirs and land terracing practices on water supply;

f. Propose a methodology for assessing area-capacity relationships for Non-Federal Reservoirs; and

g. Submit to the RRCA a proposed study plan to determine the quantitative effects of Non-Federal Reservoirs and land terracing practices on water supplies, including whether such effects can be determined for each Designated Drainage Basin.

2. Following the RRCA's acceptance of the proposed study plan described in Subsection VI.B.1.g., the States and the United States

will undertake the study at a cost not to exceed one million dollars of which the United States will be responsible for 75% of the cost and each State will be responsible for one third of the remaining 25%. The States' portion may be provided entirely through in-kind contributions. If the cost of the study exceeds one million dollars, the United States will be responsible for the entire additional amount. The States, in cooperation with the United States, shall agree upon the timetable for the completion of such study, which shall be completed within five years of the date the proposed study plan is accepted by the RRCA.

3. Participation in the joint study does not commit any State or the RRCA to take any action or to include soil and water conservation measures in Compact accounting. Each State specifically reserves its position that it need not account for conservation measures as a Beneficial Consumptive Use under the Compact.

4. Participation in the joint study by the States or the United States is contingent upon the appropriation of funds by their respective State Legislatures and Congress. Participation by the States in this study is contingent upon participation and funding by the United States in accordance with this Subsection VI.B.

VII. Dispute Resolution

A. Initial Submission to the RRCA:

1. Any matter relating to Republican River Compact administration, including administration

and enforcement of the Stipulation in which a State has an Actual Interest, shall first be Submitted to the RRCA. The United States and its agencies may attend all meetings of the RRCA. Proposed agendas, including any regular issue that may be raised, shall be distributed by the chairperson to all RRCA members at least 30 days in advance of any regular meeting and as soon as possible prior to any special meeting.

2. Each member of the RRCA shall have one vote on each issue Submitted to the RRCA. RRCA action must be by unanimous vote. Action of the RRCA shall be by formal resolution or as reflected in the approved minutes. A request for formal resolution may be made by any member.

3. Any dispute that the State raising the issue for RRCA determination believes requires immediate resolution shall be designated as a "fast-track" issue. Any "fast-track" issue will be Addressed by the RRCA within 30 days of being Submitted to the RRCA unless otherwise agreed to by all States. Nothing in this Section shall prohibit the RRCA from Addressing a dispute prior to the expiration of the 30-day period.

4. Any dispute which the State raising the issue for RRCA determination believes does not require immediate resolution shall be designated as a "regular" issue. Any "regular" issue raised no later than 30 days prior to the next regularly scheduled meeting will be Addressed by the RRCA at that meeting.

5. The RRCA will hold regular meetings pursuant to its rules and regulations. Specially scheduled meetings to address any issue that is Submitted to the RRCA and designated as a "fast-track" issue or for any other emergency purposes shall be held if requested by any member. All members shall make a good faith effort to arrange a mutually agreeable date, time, and place for all meetings. A meeting may be conducted only when all members or their designees are available to attend. In the event a member requests a specially scheduled meeting to address a "fast-track" issue or for any other emergency purposes, such meeting shall be held as soon as reasonably possible, but in no event more than 30 days after the request is made unless more time is agreed to by all members. If scheduling a meeting in person is not possible within 30 days of a request, the members may conduct a telephone conference or use other means available. If any such meeting is not held within thirty days because of the failure of any member other than the requesting member to attend or to agree to the date and place for the meeting, the State represented by the requesting member shall be relieved of any obligation to submit any dispute to the RRCA for potential consideration and resolution pursuant to the Stipulation.

6. Any issue Submitted to the RRCA by a State will include a specific definition of the issue, supporting materials and a designated schedule for resolution.

7. The RRCA will attempt to resolve any dispute submitted to the RRCA pursuant to this

Section VII. If such a dispute cannot be resolved by the RRCA at the regular or special meeting at which the issue is addressed or within a schedule agreed to by all States, and the State raising the dispute desires to proceed, the dispute shall be submitted to non-binding arbitration unless otherwise agreed to by all States with an Actual Interest. The States involved in the dispute may agree that the arbitration shall be binding, but no State shall be subject to binding arbitration without its express written consent.

B. General Dispute Resolution Provisions:

1. Unless otherwise agreed to by all States, non-binding arbitration shall be initiated as follows: Any State, pursuant to Subsection VII.A.7., may invoke arbitration by providing written notice to the other States. A copy of any notice will be provided to the United States at the same time. Notice for the purposes of this Section shall include the time frame designation, a written description of the scope of the dispute, with sufficient detail to provide the States with an understanding of the substance of the dispute and all related issues, and sufficient information for the other States with an Actual Interest to identify the technical skills that should be possessed by potential arbitrators necessary to resolve the dispute.

2. The arbitrator(s) shall be selected as follows: Upon receipt of notice of a dispute, the States shall confer within the deadlines set forth below to choose an arbitrator(s) and the States will in good faith attempt to agree on an arbitrator(s).

3. Any person submitted as a possible arbitrator by any State, or selected by CDR Associates or other such entity, shall not be an employee or agent of any State, shall be a person generally knowledgeable of the principles of the issues in the dispute, and shall disclose any actual or potential conflict of interest and all current or prior contractual and other relationships with any person or entity who could be directly affected by resolution of the dispute. Any person who has a contractual relationship with any State shall be automatically disqualified for conflict of interest unless the other States expressly agree in writing.

4. The arbitrator(s)' decision shall include a determination of the merits of the dispute and determination of a proposed remedy.

5. The arbitrator(s)' decision shall be provided to the States and the United States by facsimile and mail or comparable means.

6. Within 30 days of the issuance of the arbitrator's decision, the States that are parties to the dispute shall give written notice to the other States and the United States as to whether they will accept, accept and reject in part, or reject the arbitrator's decision.

7. No State shall object to admission of the arbitrator(s)' decision in any subsequent proceedings before the Court, but no State shall assert that the decision is conclusive on any issue. Further, no State shall call the arbitrator(s) as a witness with regard to the dispute.

8. A State that has submitted a disputed issue to the RRCA and to arbitration as provided in this Section VII shall be deemed to have exhausted its administrative remedies with regard to such issue.

C. Fast Track Dispute Resolution Schedule:

1. Upon receipt of notice under Subsection VII.B.1., each State with an interest in the dispute will have ten business days to amend the scope of the dispute to address additional issues, unless all States agree to a longer schedule. If unforeseen issues are identified after the deadline for amending the scope of the dispute, they may be added upon agreement of all States or at the discretion of the arbitrator.

2. Within ten business days of receipt of the initial notice, each State shall submit the names of proposed arbitrators, including qualifications, to the other States. Within seven business days of receipt of the proposed names, the States will meet, in person or by telephone conference, and confer to agree on an arbitrator(s). If the States with an Actual Interest cannot agree on an arbitrator(s), the selection of the arbitrator(s) will be submitted to CDR Associates, of Boulder, Colorado, or such other person or entity that may be agreed to by the RRCA. Every two years the RRCA will review the entity that will select an arbitrator(s), if the States cannot choose. The States will be bound by the selection of an arbitrator(s) by CDR Associates or such other person or entity.

3. Upon selection of an arbitrator(s), the arbitrator(s) shall, within seven business days, hold an initial meeting/conference with the States, to set the schedule for submission and resolution of the pending dispute. The arbitrator(s) shall set a schedule not to exceed six months unless the States agree otherwise. The States agree to provide all information, except privileged information, requested by the arbitrator(s).

4. The arbitrator(s) shall issue a decision resolving the dispute within the shortest reasonable time, not to exceed 60 days from the date of final submission by the State parties.

D. Regular Dispute Resolution Schedule:

1. The States with an Actual Interest will agree upon the schedule for amending the scope of the dispute.

2. The States will agree upon the method and schedule for selecting an arbitrator(s).

3. The States and the arbitrator(s) will agree on a schedule for submission and resolution of the pending dispute.

4. The States will agree on a schedule for issuance of a decision by the arbitrator(s).

VIII. Non-Severability of Agreement

The agreement of the States to the terms of this Stipulation is based upon the inclusion of all of the terms hereof, and the rights and obligations set forth in this Stipulation are not severable. If for any reason, the Court should decline to approve this Stipulation in the form presented, the entire Stipulation shall be null and void and the terms

of this Stipulation may not be used as evidence in any litigation between the States.

IX. Entirety of Agreement

This Stipulation and the Proposed Consent Judgment, together constitute the entire agreement among the parties hereto. No previous representations, inducements, promises or agreements, oral or otherwise, among the parties not contained in the documents identified in this paragraph or made in compliance with the requirements and obligations contained in the documents identified in this paragraph shall be of any force or effect. Nothing in this Section IX shall be construed as preventing the States from modifying the rules and regulations of the RRCA.

X. Retention of Jurisdiction by the Special Master

The Special Master shall retain jurisdiction until adoption of the RRCA Groundwater Model to:

A. Select an arbitrator, if necessary, pursuant to Subsection IV.C.9.b.ii. - iv.; and

B. Resolve disputes, not then subject to arbitration pursuant to Subsection IV.C.9., concerning the exchange and availability of data and information consistent with Subsection IV.C.4.

State Approvals of Final Settlement Stipulation
***Kansas v. Nebraska & Colorado*, No. 126, Original,**
United States Supreme Court

The undersigned Governors and Attorneys General for the States of Kansas, Nebraska and Colorado, having authority to commit the States to a final settlement, hereby commit the States to the terms of this Final Settlement Stipulation reached by their respective Settlement Negotiation Teams. Approval of this Final Settlement Stipulation is conditioned upon the inclusion of all of the terms herein, and the rights and obligations set forth in this Final Settlement Stipulation are not severable. If for any reason, the Special Master or the United States Supreme Court should decline to approve this Stipulation in the form presented, the approvals of the undersigned Governors and Attorneys General for the States shall be null and void.

/s/ Bill Graves
Governor,
State of Kansas

/s/ Carla J. Stovall
Attorney General,
State of Kansas

/s/ Mike Johanns
Governor,
State of Nebraska

/s/ Don Stenberg
Attorney General,
State of Nebraska

/s/ Bill Owens
Governor,
State of Colorado

/s/ Ken Salazar
Attorney General,
State of Colorado

APPENDIX A

No. 126, Original

In The

SUPREME COURT OF THE UNITED STATES

STATE OF KANSAS,

Plaintiff,

v.

STATE OF NEBRASKA

And

STATE OF COLORADO,

Defendants.

BEFORE THE HONORABLE VINCENT L. MCKUSICK
SPECIAL MASTER

PROPOSED CONSENT JUDGMENT

This cause, having come to be heard on the Final Report of the Special Master appointed by this Court, and on the Parties' Joint Motion for Approval of Final Settlement Stipulation and Consent Judgment, IT IS HEREBY ORDERED THAT:

1. The Final Settlement Stipulation executed by all the Parties to this case and presented to the Special Master on December 15, 2002, is approved and adopted;

2. All claims, counterclaims and cross-claims for which leave to file was or could have been sought in this case arising prior to December 15, 2002, are hereby dismissed with prejudice effective upon receipt by the Clerk of this Court of notice from the States that they have adopted the RRCA Groundwater Model, a description of which shall be provided with the notice and attached to the RRCA Accounting Procedures as an appendix; and

3. The Parties shall share in the costs of the Special Master in the manner that this Court shall order following the entry of this judgment.

SO ORDERED THIS ___ DAY OF _____, 200_

_____

APPENDIX B

Final Settlement Stipulation Implementation Schedule

Action	Date
Well Moratorium	By December 15, 2002
Regulate junior diverters Harlan County Dam to Guide Rock in Water-Short Years	January 1, 2003 and thereafter
Protect storage water Harlan County Dam to Guide Rock	January 1, 2004 and thereafter
Complete RRCA Groundwater Model and approval by the States	July 1, 2003 unless in arbitration
Nebraska advise on planned actions for Water-Short Year Administration	By April 30 of each Water-Short Year Administration year
Nebraska advise on actions that have or will be taken in Water-Short Year Administration	By June 30 of each Water-Short Year Administration year
First year Water-Short Year Administration compliance	2006 (if Water-Short Year Administration year, 2-year running average is 2005-2006)
First normal year compliance	2007 (5-year running average from 2003-2007)
Update RRCA Groundwater Model through 2002	Completed by December, 2003

Data exchange under RRCA Accounting Procedures Section V.	April 15, 2004 (for the 2003 year)
Non-Federal Reservoir inventory	By December 31, 2004
Conservation Measures Study	Within 5 years of RRCA approval

Planned and Proposed Actions –
For Information Purposes Only

Action	Date
System Improvement Study – Feasibility	October 2004 – September 2007
NE NRD actions	
Proposed revised rules and regulations for transfers and meters	December, 2003
Acres certified	December, 2004
Wells metered	December, 2005

APPENDIX C

Republican River Compact Administration

ACCOUNTING PROCEDURES

AND

REPORTING REQUIREMENTS

December 15, 2002

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I. Introduction

This document describes the definitions, procedures, basic formulas, specific formulas, and data requirements and reporting formats to be used by the RRCA to compute the Virgin Water Supply, Computed Water Supply, Allocations, Imported Water Supply Credit and Computed Beneficial Consumptive Use. These computations shall be used to determine supply, allocations, use and compliance with the Compact according to the Stipulation. These definitions, procedures, basic and specific formulas, data requirements and attachments may be changed by consent of the RRCA consistent with Subsection I.F of the Stipulation. This document will be referred to as the RRCA Accounting Procedures. Attached to these RRCA Accounting Procedures as Figure 1 is the map attached to the Compact that shows the Basin, its streams and the Basin boundaries.

II. Definitions

The following words and phrases as used in these RRCA Accounting Procedures are defined as follows:

Additional Water Administration Year: a year when the projected or actual irrigation water supply is less than

130,000 Acre-feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in the Harlan County Lake Operation Consensus Plan attached as Appendix K to the Stipulation.

Allocation(s): the water supply allocated to each State from the Computed Water Supply;

Annual: yearly from January 1 through December 31;

Basin: the Republican River Basin as defined in Article II of the Compact;

Beneficial Consumptive Use: that use by which the Water Supply of the Basin is consumed through the activities of man, and shall include water consumed by evaporation from any reservoir, canal, ditch, or irrigated area;

Change in Federal Reservoir Storage: the difference between the amount of water in storage in the reservoir on December 31 of each year and the amount of water in storage on December 31 of the previous year. The current area capacity table supplied by the appropriate federal operating agency shall be used to determine the contents of the reservoir on each date;

Compact: the Republican River Compact, Act of February 22, 1943, 1943 Kan. Sess. Laws 612, codified at Kan. Stat. Ann. § 82a-518 (1997); Act of February 24, 1943, 1943 Neb. Laws 377, codified at 2A Neb. Rev. Stat. App. § 1-106 (1995), Act of March 15, 1943, 1943 Colo. Sess. Laws 362, codified at Colo. Rev. Stat. §§ 37-67-101 and 37-67-102 (2001); Republican River Compact, Act of May 26, 1943, ch. 104, 57 Stat. 86;

Computed Beneficial Consumptive Use: for purposes of Compact accounting, the stream flow depletion resulting from the following activities of man:

Irrigation of lands in excess of two acres;

Any non-irrigation diversion of more than 50 Acre-feet per year;

Multiple diversions of 50 Acre-feet or less that are connected or otherwise combined to serve a single project will be considered as a single diversion for accounting purposes if they total more than 50 Acre-feet;

Net evaporation from Federal Reservoirs;

Net evaporation from Non-federal Reservoirs within the surface boundaries of the Basin;

Any other activities that may be included by amendment of these formulas by the RRCA;

Computed Water Supply: the Virgin Water Supply less the Change in Federal Reservoir Storage in any Designated Drainage Basin, and less the Flood Flows;

Designated Drainage Basins: the drainage basins of the specific tributaries and the Main Stem of the Republican River as described in Article III of the Compact. Attached hereto as Figure 3 is a map of the Sub-basins and Main Stem;

Dewatering Well: a Well constructed solely for the purpose of lowering the groundwater elevation;

Federal Reservoirs:

Bonny Reservoir
Swanson Lake
Enders Reservoir
Hugh Butler Lake
Harry Strunk Lake
Keith Sebelius Lake
Harlan County Lake
Lovewell Reservoir

Flood Flows: the amount of water deducted from the Virgin Water Supply as part of the computation of the Computed Water Supply due to a flood event as determined by the methodology described in Subsection III.B.1.;

Gaged Flow: the measured flow at the designated stream gage;

Guide Rock: a point at the Superior-Courtland Diversion Dam on the Republican River near Guide Rock, Nebraska; the Superior-Courtland Diversion Dam gage plus any flows through the sluice gates of the dam, specifically excluding any diversions to the Superior and Courtland Canals, shall be the measure of flows at Guide Rock;

Historic Consumptive Use: that amount of water that has been consumed under appropriate and reasonably efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use was lawfully made;

Imported Water Supply: the water supply imported by a State from outside the Basin resulting from the activities of man;

Imported Water Supply Credit: the accretions to stream flow due to water imports from outside of the

Basin as computed by the RRCA Groundwater Model. The Imported Water Supply Credit of a State shall not be included in the Virgin Water Supply and shall be counted as a credit/offset against the Computed Beneficial Consumptive Use of water allocated to that State, except as provided in Subsection V.B.2. of the Stipulation and Subsections III.I. – J. of these RRCA Accounting Procedures;

Main Stem: the Designated Drainage Basin identified in Article III of the Compact as the North Fork of the Republican River in Nebraska and the main stem of the Republican River between the junction of the North Fork and the Arikaree River and the lowest crossing of the river at the Nebraska-Kansas state line and the small tributaries thereof, and also including the drainage basin Blackwood Creek;

Main Stem Allocation: the portion of the Computed Water Supply derived from the Main Stem and the Unallocated Supply derived from the Sub-basins as shared by Kansas and Nebraska;

Meeting(s): a meeting of the RRCA, including any regularly scheduled annual meeting or any special meeting;

Modeling Committee: the modeling committee established in Subsection IV.C. of the Stipulation;

Moratorium: the prohibition and limitations on construction of new Wells in the geographic area described in Section III. of the Stipulation;

Non-federal Reservoirs: reservoirs other than Federal Reservoirs that have a storage capacity of 15 Acre-feet or greater at the principal spillway elevation;

Northwest Kansas: those portions of the Sub-basins within Kansas;

Replacement Well: a Well that replaces an existing Well that a) will not be used after construction of the new Well and b) will be abandoned within one year after such construction or is used in a manner that is excepted from the Moratorium pursuant to Subsections III.B.1.c.-f. of the Stipulation;

RRCA: Republican River Compact Administration, the administrative body composed of the State officials identified in Article IX of the Compact;

RRCA Accounting Procedures: this document and all attachments hereto;

RRCA Groundwater Model: the groundwater model developed under the provisions of Subsection IV.C. of the Stipulation and as described in Attachment 8;

State: any of the States of Colorado, Kansas, and Nebraska;

States: the States of Colorado, Kansas and Nebraska;

Stipulation: the Final Settlement Stipulation to be filed in *Kansas v. Nebraska and Colorado*, No. 126, Original, including all Appendices attached thereto;

Sub-basin: the Designated Drainage Basins, except for the Main Stem, identified in Article III of the Compact. For purposes of Compact accounting the following Sub-basins will be defined as described below:

> North Fork of the Republican River in Colorado drainage basin is that drainage area above USGS gaging station number 06823000, North

Fork Republican River at the Colorado-Nebraska State Line,

Arikaree River drainage basin is that drainage area above USGS gaging station number 06821500, Arikaree River at Haigler, Nebraska,

Buffalo Creek drainage basin is that drainage area above USGS gaging station number 06823500, Buffalo Creek near Haigler, Nebraska,

Rock Creek drainage basin is that drainage area above USGS gaging station number 06824000, Rock Creek at Parks, Nebraska,

South Fork of the Republican River drainage basin is that drainage area above USGS gaging station number 06827500, South Fork Republican River near Benkelman, Nebraska,

Frenchman Creek (River) drainage basin in Nebraska is that drainage area above USGS gaging station number 06835500, Frenchman Creek in Culbertson, Nebraska,

Driftwood Creek drainage basin is that drainage area above USGS gaging station number 06836500, Driftwood Creek near McCook, Nebraska,

Red Willow Creek drainage basin is that drainage area above USGS gaging station number 06838000, Red Willow Creek near Red Willow, Nebraska,

Medicine Creek drainage basin is that drainage area above the Medicine Creek below Harry Strunk Lake, State of Nebraska gaging station number 06842500; and the drainage area between the gage and the confluence with the Main Stem,

Sappa Creek drainage basin is that drainage area above USGS gaging station number 06847500, Sappa Creek near Stamford, Nebraska and the drainage area between the gage and the confluence with the Main Stem; and excluding the Beaver Creek drainage basin area downstream from the State of Nebraska gaging station number 06847000 Beaver Creek near Beaver City, Nebraska to the confluence with Sappa Creek,

Beaver Creek drainage basin is that drainage area above State of Nebraska gaging station number 06847000, Beaver Creek near Beaver City, Nebraska, and the drainage area between the gage and the confluence with Sappa Creek,

Prairie Dog Creek drainage basin is that drainage area above USGS gaging station number 06848500, Prairie Dog Creek near Woodruff, Kansas, and the drainage area between the gage and the confluence with the Main Stem;

Attached hereto as Figure 2 is a line diagram depicting the streams, Federal Reservoirs and gaging stations;

Test hole: a hole designed solely for the purpose of obtaining information on hydrologic and/or geologic conditions;

Trenton Dam: a dam located at 40 degrees, 10 minutes, 10 seconds latitude and 101 degrees, 3 minutes, 35 seconds longitude, approximately two and one-half miles west of the town of Trenton, Nebraska;

Unallocated Supply: the "water supplies of upstream basins otherwise unallocated" as set forth in Article IV of the Compact;

Upstream of Guide Rock, Nebraska: those areas within the Basin lying west of a line proceeding north from the Nebraska-Kansas state line and following the western edge of Webster County, Township 1, Range 9, Sections 34, 27, 22, 15, 10 and 3 through Webster County, Township 2, Range 9, Sections 34, 27 and 22; then proceeding west along the southern edge of Webster County, Township 2, Range 9, Sections 16, 17 and 18; then proceeding north following the western edge of Webster County, Township 2, Range 9, Sections 18, 7 and 6, through Webster County, Township 3, Range 9, Sections 31, 30, 19, 18, 7 and 6 to its intersection with the northern boundary of Webster County. Upstream of Guide Rock, Nebraska shall not include that area in Kansas east of the 99° meridian and south of the Kansas-Nebraska state line;

Virgin Water Supply: the Water Supply within the Basin undepleted by the activities of man;

Water-Short Year Administration: administration in a year when the projected or actual irrigation water supply is less than 119,000 acre feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in the Harlan County Lake Operation Consensus Plan attached as Appendix K to the Stipulation;

Water Supply of the Basin or **Water Supply within the Basin:** the stream flows within the Basin, excluding Imported Water Supply;

Well: any structure, device or excavation for the purpose or with the effect of obtaining groundwater for beneficial use from an aquifer, including wells, water wells, or groundwater wells as further defined and used in each State's laws, rules, and regulations.

III. Basic Formulas

The basic formulas for calculating Virgin Water Supply, Computed Water Supply, Imported Water Supply, Allocations and Computed Beneficial Consumptive Use are set forth below. The results of these calculations shall be shown in a table format as shown in Table 1.

Basic Formulas for Calculating Virgin Water Supply, Computed Water Supply, Allocations and Computed Beneficial Consumptive Use	
Sub-basin VWS	= Gage + All CBCU +ΔS – IWS
Main Stem VWS	= Hardy Gage – Σ Sub-basin gages + All CBCU in the Main Stem +ΔS – IWS
CWS	= VWS - Δ S – FF
Allocation for each State in each Sub-basin And Main Stem	= CWS x %
State's Allocation	= Σ Allocations for Each State
State's CBCU	= Σ State's CBCUs in each Sub-basin and Main Stem

Abbreviations:

CBCU = Computed Beneficial Consumptive Use

FF = Flood Flows

Gage = Gaged Flow

IWS = Imported Water Supply Credit

CWS = Computed Water Supply

VWS = Virgin Water Supply

% = the ratio used to allocate the Computed Water Supply between the States. This ratio is based on the allocations in the Compact

ΔS = Change in Federal Reservoir Storage

A. Calculation of Annual Virgin Water Supply

1. Sub-basin calculation: The annual Virgin Water Supply for each Sub-basin will be calculated by adding: a) the annual stream flow in that Sub-basin at the Sub-basin stream gage designated in Section II., b) the annual Computed Beneficial Consumptive Use above that gaging station, and c) the Change in Federal Reservoir Storage in that Sub-basin; and from that total subtract any Imported Water Supply Credit. The Computed Beneficial Consumptive Use will be calculated as described in Subsection III. D. Adjustments for flows diverted around stream gages and for Computed Beneficial Consumptive Uses in the Sub-basin between the Sub-basin stream gage and the confluence of the Sub-basin tributary and the Main Stem shall be made as described in Subsections III. D. 1 and 2 and IV. B.

2. Main Stem Calculation: The annual Virgin Water Supply for the Main Stem will be calculated by adding: a) the flow at the Hardy gage minus the flows from the Sub-basin gages listed in Section II, b) the annual Computed Beneficial Consumptive Use in the Main Stem, and c) the Change in Federal Reservoir Storage from Swanson Lake and Harlan County Lake; and from that total subtract any Imported Water Supply Credit for the Main Stem. Adjustments for flows diverted around Sub-basin stream gages and for Computed Beneficial Consumptive Uses in a Sub-basin between the Sub-basin stream gage and the

confluence of the Sub-basin tributary and the Main Stem shall be made as described in Subsections III. D. 1 and 2 and IV.B.,

3. Imported Water Supply Credit Calculation: The amount of Imported Water Supply Credit shall be determined by the RRCA Groundwater Model. The Imported Water Supply Credit of a State shall not be included in the Virgin Water Supply and shall be counted as a credit/offset against the Computed Beneficial Consumptive Use of water allocated to that State. Currently, the Imported Water Supply Credits shall be determined using two runs of the RRCA Groundwater Model:

a. The "base" run shall be the run with all groundwater pumping, groundwater pumping recharge, and surface water recharge within the model study boundary for the period 1940 to the current accounting year turned "on." This will be the same "base" run used to determine groundwater Computed Beneficial Consumptive Uses.

b. The "no NE import" run shall be the run with the same model inputs as the base run with the exception that surface water recharge associated with Nebraska's Imported Water Supply shall be turned "off."

The Imported Water Supply Credit shall be the difference in stream flows between these two model runs. Differences in stream flows shall be determined at the same locations as identified in Subsection III.D.1.for the "no pumping" runs.

Should another State import water into the Basin in the future, the RRCA will develop a similar procedure to determine Imported Water Supply Credits.

B. Calculation of Computed Water Supply

On any Designated Drainage Basin without a Federal Reservoir, the Computed Water Supply will be equal to the Virgin Water Supply of that Designated Drainage Basin minus Flood Flows.

On any Designated Drainage Basin with a Federal Reservoir, the Computed Water Supply will be equal to the Virgin Water Supply minus the Change in Federal Reservoir Storage in that Designated Drainage Basin and minus Flood Flows.

1. **Flood Flows**: If in any calendar year there are five consecutive months in which the total actual stream flow[1] at the Hardy gage is greater than 325,000 Acre-feet, or any two consecutive months in which the total actual stream flow is greater than 200,000 Acre-feet, the annual flow in excess of 400,000 Acre-feet at the Hardy gage will be considered to be Flood Flows that will be subtracted from the Virgin Water Supply to calculate the Computed Water Supply, and Allocations. The Flood Flow in excess of 400,000 Acre-feet at the Hardy gage will be subtracted from the Virgin Water Supply of the Main Stem to compute the Computed Water Supply unless the Annual Gaged Flows from a Sub-basin were in excess of the flows shown for that Sub-basin in Attachment 1. These excess Sub-basin flows shall be considered to be Sub-basin Flood Flows.

If there are Sub-basin Flood Flows, the total of all Sub-basin Flood Flows shall be compared to the

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[1] These actual stream flows reflect Gaged Flows after depletions by Beneficial Consumptive Use and change in reservoir storage above the gage.

amount of Flood Flows at the Hardy gage. If the sum of the Sub-basin Flood Flows are in excess of the Flood Flow at the Hardy gage, the flows to be deducted from each Sub-basin shall be the product of the Flood Flows for each Sub-basin times the ratio of the Flood Flows at the Hardy gage divided by the sum of the Flood Flows of the Sub-basin gages. If the sum of the Sub-basin Flood Flows is less than the Flood Flow at the Hardy gage, the entire amount of each Sub-basin Flood Flow shall be deducted from the Virgin Water Supply to compute the Computed Water Supply of that Sub-basin for that year. The remainder of the Flood Flows will be subtracted from the flows of the Main Stem.

C. Calculation of Annual Allocations

Article IV of the Compact allocates 54,100 Acre-feet for Beneficial Consumptive Use in Colorado, 190,300 Acre-feet for Beneficial Consumptive Use in Kansas and 234,500 Acre-feet for Beneficial Consumptive Use in Nebraska. The Compact provides that the Compact totals are to be derived from the sources and in the amounts specified in Table 2.

The Allocations derived from each Sub-basin to each State shall be the Computed Water Supply multiplied by the percentages set forth in Table 2. In addition, Kansas shall receive 51.1% of the Main Stem Allocation and the Unallocated Supply and Nebraska shall receive 48.9% of the Main Stem Allocation and the Unallocated Supply.

D. Calculation of Annual Computed Beneficial Consumptive Use

1. Groundwater

Computed Beneficial Consumptive Use of groundwater shall be determined by use of the RRCA Groundwater Model. The Computed Beneficial Consumptive Use of groundwater for each State shall be determined as the difference in streamflows using two runs of the model:

The "base" run shall be the run with all groundwater pumping, groundwater pumping recharge, and surface water recharge within the model study boundary for the period 1940 to the current accounting year "on"

The "no State pumping" run shall be the run with the same model inputs as the base run with the exception that all groundwater pumping and pumping recharge of that State shall be turned "off."

An output of the model is baseflows at selected stream cells. Changes in the baseflows predicted by the model between the "base" run and the "no-State-pumping" model run is assumed to be the depletions to streamflows. i.e., groundwater computed beneficial consumptive use, due to State groundwater pumping at that location. The values for each Sub-basin will include all depletions and accretions upstream of the confluence with the Main Stem. The values for the Main Stem will include all depletions and accretions in stream reaches not otherwise accounted for in a Sub-basin. The values for the Main Stem will be computed separately for the reach above Guide Rock, and the reach below Guide Rock.

2. Surface Water

The Computed Beneficial Consumptive Use of surface water for irrigation and non-irrigation uses shall be computed by taking the diversions from the river and subtracting the return flows to the river resulting from those diversions, as described in Subsections IV.A.2.a.-d. The Computed Beneficial Consumptive Use of surface water from Federal Reservoir and Non-Federal Reservoir evaporation shall be the net reservoir evaporation from the reservoirs, as described in Subsections IV.A.2.e.-f.

For Sub-basins where the gage designated in Section II. is near the confluence with the Main Stem, each State's Sub-basin Computed Beneficial Consumptive Use of surface water shall be the State's Computed Beneficial Consumptive Use of surface water above the Sub-basin gage. For Medicine Creek, Sappa Creek, Beaver Creek and Prairie Dog Creek, where the gage is not near the confluence with the Main Stem, each State's Computed Beneficial Consumptive Use of surface water shall be the sum of the State's Computed Beneficial Consumptive Use of surface water above the gage, and its Computed Beneficial Consumptive Use of surface water between the gage and the confluence with the Main Stem.

E. Calculation to Determine Compact Compliance Using Five-Year Running Averages

Each year, using the procedures described herein, the RRCA will calculate the Annual Allocations by Designated Drainage Basin and total for each State, the Computed Beneficial Consumptive Use by Designated Drainage Basin and total for each State and the Imported Water Supply Credit that a State may use in

that year. These results for the current Compact accounting year as well as the results of the previous four accounting years and the five-year average of these results will be displayed in the format shown in Table 3.

F. Calculations To Determine Colorado's and Kansas's Compliance with the Sub-basin Non-Impairment Requirement

The data needed to determine Colorado's and Kansas's compliance with the Sub-basin non-impairment requirement in Subsection IV.B.2. of the Stipulation are shown in Tables 4.A. and B.

G. Calculations To Determine Projected Water Supply

1. Procedures to Determine Water Short Years

The Bureau of Reclamation will provide each of the States with a monthly or, if requested by any one of the States, a more frequent update of the projected or actual irrigation supply from Harlan County Lake for that irrigation season using the methodology described in the Harlan County Lake Operation Consensus Plan, attached as Appendix K to the Stipulation. The steps for the calculation are as follows:

Step 1. At the beginning of the calculation month (1) the total projected inflow for the calculation month and each succeeding month through the end of May shall be added to the previous end of month Harlan County Lake content and (2) the total projected 1993 level evaporation loss for the calculation month and each succeeding month through the end of May shall

then be subtracted. The total projected inflow shall be the 1993 level average monthly inflow or the running average monthly inflow for the previous five years, whichever is less.

Step 2. Determine the maximum irrigation water available by subtracting the sediment pool storage (currently 164,111 Acre-feet) and adding the summer sediment pool evaporation (20,000 Acre-feet) to the result from Step 1.

Step 3. For October through January calculations, take the result from Step 2 and using the Shared Shortage Adjustment Table in Attachment 2 hereto, determine the preliminary irrigation water available for release. The calculation using the end of December content (January calculation month) indicates the minimum amount of irrigation water available for release at the end of May. For February through June calculations, subtract the maximum irrigation water available for the January calculation month from the maximum irrigation water available for the calculation month. If the result is negative, the irrigation water available for release (January calculation month) stays the same. If the result is positive the preliminary irrigation water available for release (January calculation month) is increased by the positive amount.

Step 4. Compare the result from Step 3 to 119,000 Acre-feet. If the result from Step 3 is less than 119,000 Acre-feet Water Short Year Administration is in effect.

Step 5. The final annual Water-Short Year Administration calculation determines the total estimated irrigation supply at the end of June (calculated in July). Use the result from Step 3 for the end of May irrigation release estimate, add the June computed inflow

to Harlan County Lake and subtract the June computed gross evaporation loss from Harlan County Lake.

2. Procedures to Determine 130,000 Acre Feet Projected Water Supply

To determine the preliminary irrigation supply for the October through June calculation months, follow the procedure described in steps 1 through 4 of the "Procedures to determine Water Short Years" Subsection III. G. 1. The result from step 4 provides the forecasted water supply, which is compared to 130,000 Acre-feet. For the July through September calculation months, use the previous end of calculation month preliminary irrigation supply, add the previous month's Harlan County Lake computed inflow and subtract the previous month's computed gross evaporation loss from Harlan County Lake to determine the current preliminary irrigation supply. The result is compared to 130,000 Acre-feet.

H. Calculation of Computed Water Supply, Allocations and Computed Beneficial Consumptive Use Above and Below Guide Rock During Water-Short Administration Years.

For Water-Short Administration Years, in addition to the normal calculations, the Computed Water Supply, Allocations, Computed Beneficial Consumptive Use and Imported Water Supply Credits shall also be calculated above Guide Rock as shown in Table 5C. These calculations shall be done in the same manner as in non-Water-Short Administration years except that water supplies originating below Guide Rock shall not be included in the calculations of water

supplies originating above Guide Rock. The calculations of Computed Beneficial Consumptive Uses shall be also done in the same manner as in non-Water-Short Administration years except that Computed Beneficial Consumptive Uses from diversions below Guide Rock shall not be included. The depletions from the water diverted by the Superior and Courtland Canals at the Superior-Courtland Diversion Dam shall be included in the calculations of Computed Beneficial Consumptive Use above Guide Rock. Imported Water Supply Credits above Guide Rock, as described in Sub-section III.I., may be used as offsets against the Computed Beneficial Consumptive Use above Guide Rock by the State providing the Imported Water Supply Credits.

The Computed Water Supply of the Main Stem reach between Guide Rock and the Hardy gage shall be determined by taking the difference in stream flow at Hardy and Guide Rock, adding Computed Beneficial Consumptive Uses in the reach (this does not include the Computed Beneficial Consumptive Use from the Superior and Courtland Canal diversions), and subtracting return flows from the Superior and Courtland Canals in the reach. The Computed Water Supply above Guide Rock shall be determined by subtracting the Computed Water Supply of the Main Stem reach between Guide Rock and the Hardy gage from the total Computed Water Supply. Nebraska's Allocation above Guide Rock shall be determined by subtracting 48.9% of the Computed Water Supply of the Main Stem reach between Guide Rock and the Hardy gage from Nebraska's total Allocation. Nebraska's Computed Beneficial Consumptive Uses above Guide Rock shall be determined by subtracting Nebraska's Computed Beneficial Consumptive Uses below Guide Rock from Nebraska's total Computed Beneficial Consumptive Use.

I. Calculation of Imported Water Supply Credits During Water-Short Year Administration Years.

Imported Water Supply Credit during Water-Short Year Administration years shall be calculated consistent with Subsection V.B.2.b. of the Stipulation,

The following methodology shall be used to determine the extent to which Imported Water Supply Credit, as calculated by the RRCA Groundwater Model, can be credited to the State importing the water during Water-Short Year Administration years.

1. Monthly Imported Water Supply Credits

The RRCA Groundwater Model will be used to determine monthly Imported Water Supply Credits by State in each Sub-basin and for the Main Stem. The values for each Sub-basin will include all depletions and accretions upstream of the confluence with the Main Stem. The values for the Main Stem will include all depletions and accretions in stream reaches not otherwise accounted for in a Sub-basin. The values for the Main Stem will be computed separately for the reach 1) above Harlan County Dam, 2) between Harlan County Dam and Guide Rock, and 3) between Guide Rock and the Hardy gage. The Imported Water Supply Credit shall be the difference in stream flow for two runs of the model: a) the "base" run and b) the "no State import" run.

During Water-Short Year Administration years, Nebraska's credits in the Sub-basins shall be determined as described in Section III. A. 3.

2. Imported Water Supply Credits Above Harlan County Dam

Nebraska's Imported Water Supply Credits above Harlan County Dam shall be the sum of all the credits in the Sub-basins and the Main Stem above Harlan County Dam.

3. Imported Water Supply Credits Between Harlan County Dam and Guide Rock During the Irrigation Season

a. During Water-Short Year Administration years, monthly credits in the reach between Harlan County Dam and Guide Rock shall be determined as the differences in the stream flows between the two runs at Guide Rock.

b. The irrigation season shall be defined as starting on the first day of release of water from Harlan County Lake for irrigation use and ending on the last day of release of water from Harlan County Lake for irrigation use.

c. Credit as an offset for a State's Computed Beneficial Consumptive Use above Guide Rock will be given to all the Imported Water Supply accruing in the reach between Harlan County Dam and Guide Rock during the irrigation season. If the period of the irrigation season does not coincide with the period of modeled flows, the amount of the Imported Water Supply credited during the irrigation season for that month shall be the total monthly modeled Imported Water Supply Credit times the number of days in the month occurring during the irrigation season divided by the total number of days in the month.

4. Imported Water Supply Credits Between Harlan County Dam and Guide Rock During the Non-Irrigation Season

a. Imported Water Supply Credit shall be given between Harlan County Dam and Guide Rock during the period that flows are diverted to fill Lovewell Reservoir to the extent that imported water was needed to meet Lovewell Reservoir target elevations.

b. Fall and spring fill periods shall be established during which credit shall be given for the Imported Water Supply Credit accruing in the reach. The fall period shall extend from the end of the irrigation season to December 1. The spring period shall extend from March 1 to May 31. The Lovewell target elevations for these fill periods are the projected end of November reservoir level and the projected end of May reservoir level for most probable inflow conditions as indicated in Table 4 in the current Annual Operating Plan prepared by the Bureau of Reclamation.

c. The amount of water needed to fill Lovewell Reservoir for each period shall be calculated as the storage content of the reservoir at its target elevation at the end of the fill period minus the reservoir content at the start of the fill period plus the amount of net evaporation during this period minus White Rock Creek inflows for the same period.

d. If the fill period as defined above does not coincide with the period of modeled flows, the amount of the Imported Water Supply Credit during the fill period for that month shall be the total monthly modeled Imported Water Supply Credit times the number of days in the month occurring during the fill season divided by the total number of days in the month.

e. The amount of non-imported water available to fill Lovewell Reservoir to the target elevation shall be the amount of water available at Guide Rock during the fill period minus the amount of the Imported Water Supply Credit accruing in the reach during the same period.

f. The amount of the Imported Water Supply Credit that shall be credited against a State's Consumptive Use shall be the amount of water imported by that State that is available in the reach during the fill period or the amount of water needed to reach Lovewell Reservoir target elevations minus the amount of non-imported water available during the fill period, whichever is less.

5. Other Credits

Kansas and Nebraska will explore crediting Imported Water Supply that is otherwise useable by Kansas.

J. Calculations of Compact Compliance in Water-Short Year Administration Years

During Water-Short Year Administration, using the procedures described in Subsections III.A-D, the RRCA will calculate the Annual Allocations for each State, the Computed Beneficial Consumptive Use by each State, and Imported Water Supply Credit that a State may use to offset Computed Beneficial Consumptive Use in that year. The resulting annual and average values will be calculated as displayed in Tables 5 A-C and E.

If Nebraska is implementing an Alternative Water-Short-Year Administration Plan, data to determine Compact compliance will be shown in Table 5D.

Nebraska's compliance with the Compact will be determined in the same manner as Nebraska's Above Guide Rock compliance except that compliance will be based on a three-year running average of the current year and previous two year calculations. In addition, Table 5 D. will display the sum of the previous two-year difference in Allocations above Guide Rock and Computed Beneficial Consumptive Uses above Guide Rock minus any Imported Water Credits and compare the result with the Alternative Water-Short-Year Administration Plan's expected decrease in Computed Beneficial Consumptive Use above Guide Rock. Nebraska will be within compliance with the Compact as long as the three-year running average difference in Column 8 is positive and the sum of the previous year and current year deficits above Guide Rock are not greater than the expected decrease in Computed Beneficial Consumptive Use under the plan.

IV. Specific Formulas

A. Computed Beneficial Consumptive Use

1. Computed Beneficial Consumptive Use of Groundwater: the Computed Beneficial Consumptive Use caused by groundwater diversion shall be determined by the RRCA Groundwater Model as described in Subsection III.D.1.

2. Computed Beneficial Consumptive Use of Surface Water: the Computed Beneficial Consumptive Use of surface water shall be calculated as follows:

    a. Computed Beneficial Consumptive Use from diversions by non- federal canals shall be 60 percent of the diversion; the return flow shall be 40 percent of the diversion

    b. Computed Beneficial Consumptive Use from small individual surface water pumps shall

be 75 percent of the diversion; return flows will be 25 percent of the diversion unless a state provides data on the amount of different system types in a Sub-basin, in which case the following percentages will be used for each system type:

Gravity Flow.	30%
Center Pivot	17%
LEPA	10%

c. Computed Beneficial Consumptive Use of diversions by Federal canals will be calculated as shown in Attachment 7. For each Bureau of Reclamation Canal the field deliveries shall be subtracted from the diversion from the river to determine the canal losses. The field delivery shall be multiplied by one minus an average system efficiency for the district to determine the loss of water from the field. Eighty-two percent of the sum of the field loss plus the canal loss shall be considered to be the return flow from the canal diversion. The assumed field efficiencies and the amount of the field and canal loss that reaches the stream may be reviewed by the RRCA and adjusted as appropriate to insure their accuracy.

d. Any non-irrigation uses diverting or pumping more than 50 Acre-feet per year will be required to measure diversions. Non-irrigation uses diverting more than 50 Acre-feet per year will be assessed a Computed Beneficial Consumptive Use of 50% of what is pumped or diverted, unless the entity presents evidence to the RRCA demonstrating a different percentage should be used.

e. Net Evaporation from Federal Reservoirs will be calculated as follows:

1. Harlan County Lake, Evaporation Calculation

April 1 through October 31:

Evaporation from Harlan County Lake is calculated by the Corps of Engineers on a daily basis from April 1 through October 31. Daily readings are taken from a Class A evaporation pan maintained near the project office. Any precipitation recorded at the project office is added to the pan reading to obtain the actual evaporation amount. The pan value is multiplied by a pan coefficient which varies by month. These values are:

March	.56
April	.52
May	.53
June	.60
July	.68
August	.78
September	.91
October	1.01

The pan coefficients were determined by studies the Corps of Engineers conducted a number of years ago. The result is the evaporation in inches. It is divided by 12 and multiplied by the daily lake surface area in acres to obtain the evaporation in Acre-feet. The lake surface area is determined by the 8:00 a.m. elevation reading applied to the lake's area-capacity data. The area-capacity data is updated periodically through a sediment survey. The last survey was completed in December 2000.

November 1 through March 31

During the winter season, a monthly total evaporation in inches has been determined. The amount varies with the percent of ice cover. The values used are:

HARLAN COUNTY LAKE

Estimated Evaporation in Inches
Winter Season – Monthly Total

PERCENTAGE OF ICE COVER

	0%	10%	20%	30%	40%
JAN	.88	.87	.85	.84	.83
FEB	.90	.88	.87	.86	.85
MAR	1.29	1.28	1.27	1.26	1.25
OCT	4.87			NO ICE	
NOV	2.81			NO ICE	
DEC	1.31	1.29	1.27	1.25	1.24

	50%	60%	70%	80%	90%	100%
JAN	.82	.81	.80	.78	.77	.76
FEB	.84	.83	.82	.81	.80	.79
MAR	1.24	1.23	1.22	1.21	1.20	1.19
OCT		NO ICE				
NOV		NO ICE				
DEC	1.22	1.20	1.18	1.17	1.16	1.14

The monthly total is divided by the number of days in the month to obtain a daily evaporation value in inches. It is divided by 12 and multiplied by the daily lake surface area in acres to obtain the evaporation in Acre-feet. The lake surface area is determined by the 8:00 a.m. elevation reading applied to the lake's area-capacity data. The area-capacity data is updated periodically through

a sediment survey. The last survey was completed in December 2000.

To obtain the net evaporation, the monthly precipitation on the lake is subtracted from the monthly gross evaporation. The monthly precipitation is calculated by multiplying the sum of the month's daily precipitation in inches by the average of the end of the month lake surface area for the previous month and the end of the month lake surface area for the current month in acres and dividing the result by 12 to obtain the precipitation for the month in acre feet.

The total annual net evaporation (Acre-feet) will be charged to Kansas and Nebraska in proportion to the annual diversions made by the Kansas Bostwick Irrigation District and the Nebraska Bostwick Irrigation District during the time period each year when irrigation releases are being made from Harlan County Lake. In the event Nebraska chooses to substitute supply for the Superior Canal from Nebraska's allocation below Guide Rock in Water-Short Year Administration years, the amount of the substitute supply will be included in the calculation of the split as if it had been diverted to the Superior Canal at Guide Rock.

2. Evaporation Computations for Bureau of Reclamation Reservoirs

The Bureau of Reclamation computes the amount of evaporation loss on a monthly basis at Reclamation reservoirs. The following procedure is utilized in calculating the loss in Acre-feet.

An evaporation pan reading is taken each day at the dam site. This measurement is the amount of water lost from the pan over a 24-hour period in inches. The evaporation pan reading is adjusted for any precipitation recorded during the 24-hour period. Instructions for determining the daily pan evaporation are found in the "National Weather Service Observing Handbook No. 2 – Substation Observations." All dams located in the Kansas River Basin with the exception of Bonny Dam are National Weather Service Cooperative Observers. The daily evaporation pan readings are totaled at the end of each month and converted to a "free water surface" (FWS) evaporation, also referred to as "lake" evaporation. The FWS evaporation is determined by multiplying the observed pan evaporation by a coefficient of .70 at each of the reservoirs. This coefficient can be affected by several factors including water and air temperatures. The National Oceanic and Atmospheric Administration (NOAA) has published technical reports describing the determination of pan coefficients. The coefficient used is taken from the "NOAA Technical Report NWS 33, Map of coefficients to convert class A pan evaporation to free water surface evaporation" This coefficient is used for the months of April through October when evaporation pan readings are recorded at the dams. The monthly FWS evaporation is then multiplied by the average surface area of the reservoir during the month in acres. Dividing this value by twelve will result in the amount of water lost to evaporation in Acre-feet during the month.

During the winter months when the evaporation pan readings are not taken, monthly evaporation tables based on the percent of ice cover are used. The tables used were developed by the Corps of Engineers and were based on historical average evaporation rates. A separate table was developed for each of the reservoirs. The monthly evaporation rates are multiplied by the .70 coefficient for pan to free water surface adjustment, divided by twelve to convert inches to feet and multiplied by the average reservoir surface area during the month in acres to obtain the total monthly evaporation loss in Acre-feet.

To obtain the net evaporation, the monthly precipitation on the lake is subtracted from the monthly gross evaporation. The monthly precipitation is calculated by multiplying the sum of the month's daily precipitation in inches by the average of the end of the month lake surface area for the previous month and the end of the month lake surface area for the current month in acres and dividing the result by 12 to obtain the precipitation for the month in acre feet.

f. Non-Federal Reservoir Evaporation: For Non-Federal Reservoirs with a storage capacity less than 200 Acre-feet, the presumptive average annual surface area is 25% of the area at the principal spillway elevation. Net evaporation for each such Non-Federal Reservoir will be calculated by multiplying the presumptive average annual surface area by the net evaporation from the nearest climate and evaporation station to the Non-Federal Reservoir. A State may provide actual data in lieu of the presumptive criteria.

Net evaporation from Non-Federal Reservoirs with 200 Acre-feet of storage or greater will be calculated by multiplying the average annual surface area (obtained from the area-capacity survey) and the net evaporation from the nearest evaporation and climate station to the reservoir. If the average annual surface area is not available, the Non-Federal Reservoirs with 200 Acre-feet of storage or greater will be presumed to be full at the principal spillway elevation.

B. Specific Formulas for Each Sub-basin and the Main Stem

All calculations shall be based on the calendar year and shall be rounded to the nearest 10 Acre-feet using the conventional rounding formula of rounding up for all numbers equal to five or higher and otherwise rounding down.

Abbreviations:

CBCU = Computed Beneficial Consumptive Use
D = Small Surface Water Ditch Diversions for Irrigation
Ev = Evaporation from Federal Reservoirs
EvNFR = Evaporation from Non-Federal Reservoirs
FF = Flood Flow
GW = Groundwater Computed Beneficial Consumptive Use (includes irrigation and non-irrigation uses)
IWS = Imported Water Supply Credit
P = Small Surface Water Pump Diversions for Irrigation
RF = Return Flow
c = Colorado
k = Kansas
n = Nebraska

ΔS = Change in Federal Reservoir Storage
% = Average system efficiency for individual pumps in the Sub-basin
% BRF = Percent of Diversion from Bureau Canals that returns to the stream

1. North Fork of Republican River in Colorado[2]

CBCU Colorado = .6 x Haigler Canal Diversion Colorado + .6 x Dc + GWc + EvNFRc

CBCU Kansas = GWk

CBCU Nebraska = .6 x Haigler Canal Diversion Nebraska + % x Pn + GWn + EvNFRn

(The diversion for Haigler Canal is split between Colorado and Nebraska based on the percentage of land irrigated in each state)

VWS = North Fork of the Republican River at the State Line, Stn. No. 06823000 + CBCUc + CBCUk + CBCUn + Nebraska Haigler Canal RF to Main Stem – IWS

CWS = VWS – FF

Allocation Colorado = .224 x CWS

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[2] The RRCA will investigate whether return flows from the Haigler Canal diversion in Colorado may return to the Arikaree River, not the North Fork of the Republican River, as indicated in the formulas. If there are return flows from the Haigler Canal to the Arikaree River, these formulas will be changed to recognize those returns.

Allocation Nebraska = .246 x CWS

Unallocated = .53 x CWS

2. Arikaree River[2]

CBCU Colorado = GWc + EvNFRc

CBCU Kansas = % x Pk + GWk + EvNFRk

CBCU Nebraska = % x Pn + GWn + EvNFRn

VWS = Arikaree Gage at Haigler Stn. No. 06821500 + CBCUc + CBCUk + CBCUn – IWS

CWS = VWS – FF

Allocation Colorado = .785 x CWS

Allocation Kansas = .051 x CWS

Allocation Nebraska = .168 x CWS

Unallocated = -.004 x CWS

3. Buffalo Creek

CBCU Colorado = GWc

CBCU Kansas = GWk

CBCU Nebraska = % x Pn + GWn + EvNFRn

VWS = Buffalo Creek near Haigler Gage Stn. No. 06823500 + CBCUc + CBCUk + CBCUn – IWS

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[2] The RRCA will investigate whether return flows from the Haigler Canal diversion in Colorado may return to the Arikaree River, not the North Fork of the Republican River, as indicated in the formulas. If there are return flows from the Haigler Canal to the Arikaree River, these formulas will be changed to recognize those returns.

CWS = VWS – FF

Allocation Nebraska = .330 x CWS

Unallocated = .670 x CWS

4. Rock Creek

CBCU Colorado = GWc

CBCU Kansas = GWk

CBCU Nebraska = % x Pn + GWn + EvNFRn

VWS = Rock Creek at Parks Gage Stn. No. 06824000 + CBCUc + CBCUk + CBCUn – IWS

CWS = VWS – FF

Allocation Nebraska = .400 x CWS

Unallocated = .600 x CWS

5. South Fork Republican River

CBCU Colorado = .6 x Hale Ditch Diversion + .6 x Dc + GWc + EvNFRc+ Bonny Reservoir Ev

CBCU Kansas = % x Pk +GWk + EvNFRk

CBCU Nebraska = % x Pn + GWn + EvNFRn

VWS = South Fork Republican River near Benkelman Gage Stn. No. 06827500 + CBCUc + CBCUk + CBCUn + ΔS Bonny Reservoir – IWS

CWS = VWS – ΔS Bonny Reservoir – FF

Allocation Colorado = .444 x CWS

Allocation Kansas = .402 x CWS

Allocation Nebraska = .014 x CWS

Unallocated = .140 x CWS

6. Frenchman Creek in Nebraska

CBCU Colorado = GWc

CBCU Nebraska = .6 x Champion Canal Diversion + .6 x Riverside Canal Diversion + Culbertson Canal Diversions x (1-%BRF) + Culbertson Extension x (1-%BRF) +% x Pn + GWn + EvNFRn + Enders Reservoir Ev

VWS = Frenchman Creek in Culbertson, Nebraska Gage Stn. No. 06835500 + CBCUc + CBCUn + .17 x RF Culbertson Diversion, which goes to the Main Stem + 100% Culbertson Extension RF which goes to the Main Stem – IWS + ΔS Enders Reservoir

CWS = VWS – ΔS Enders Reservoir – FF

Allocation Nebraska = .536 x CWS

Unallocated = .464 x CWS

7. Driftwood Creek

CBCU Kansas =% x Pk + GWk + EvNFRk

CBCU Nebraska =% x Pn + GWn + EvNFRn

VWS = Driftwood Creek near McCook Gage Stn. No. 06836500 + CBCUk + CBCUn – RF from lands served by Meeker Driftwood Canal – IWS

(RF from Meeker Driftwood Canal to Driftwood Creek = .24 x RF from Diversion by Meeker Driftwood Canal)

CWS = VWS – FF

Allocation Kansas = .069 x CWS

Allocation Nebraska = .164 x CWS

Unallocated = .767 x CWS

8. Red Willow Creek in Nebraska

CBCU Nebraska = .1 x Red Willow Canal CBCU +% x Pn + GWn + EvNFRn + .1 x Hugh Butler Lake Ev

CBCU Red Willow Canal = Red Willow Canal Diversion x (1-% BRF)

VWS = Red Willow Creek near Red Willow Gage Stn. No. 06838000 + CBCUn + .9 x Red Willow Canal CBCU + .9 x Hugh Butler Lake Ev + ΔS Hugh Butler Lake – IWS

CWS = VWS – ΔS Hugh Butler Lake – FF

Allocation Nebraska = .192 x CWS

Unallocated = .808 x CWS

9. Medicine Creek

CBCU Nebraska = % x Pn above and below gage + GWn above and below gage + EvNFRn

(Note: Evaporation from Harry Strunk Lake charged to main stem)

VWS = Medicine Creek below Harry Strunk Lake Gage Stn. No. 06842500 + CBCUn + ΔS Harry Strunk Lake + Harry Strunk Lake Ev – IWS

CWS = VWS – ΔS Harry Strunk Lake – FF

Allocation Nebraska = .091 x CWS

Unallocated = .909 x CWS

10. Beaver Creek

CBCU Colorado = GWc + EvNFRc

CBCU Kansas =% x Pk + GWk + EvNFRk

CBCU Nebraska = % x Pn above and below gage + GWn above and below gage + EvNFRn

VWS = Beaver Creek near Beaver City gage Stn. No. 06847000 + CBCUc + CBCUk + CBCUn – IWS

CWS = VWS - FF

Allocation Colorado = .200 x CWS

Allocation Kansas = .388 x CWS

Allocation Nebraska = .406 x CWS

Unallocated = .006 x CWS

11. Sappa Creek

CBCU Kansas = % x Pk + GWk above and below gage + EvNFRk

CBCU Nebraska = % x Pn above and below gage + GWn above and below gage + EvNFRn

VWS = Sappa Creek near Stamford gage Stn. No. 06847500 – Beaver Creek near Beaver City gage Stn. No. 06847000 + CBCUk + CBCUn – IWS

CWS = VWS – FF

Allocation Kansas = .411 x CWS

Allocation Nebraska = .411 x CWS

Unallocated = .178 x CWS

12. Prairie Dog Creek

CBCU Kansas = % x Pk + Almena Canal Diversion x (1-%BRF) + GWk + EvNFRk + Keith Sebelius Lake Ev

CBCU Nebraska = % x Pn below gage + GWn below gage + EvNFRn

VWS = Prairie Dog Creek near Woodruff, Kansas USGS Stn. No. 06848500 + CBCUk + CBCUn + ΔS Keith Sebelius Lake – IWS

CWS = VWS – ΔS Keith Sebelius Lake – FF

Allocation Kansas = .457 x CSW

Allocation Nebraska = .076 x CWS

Unallocated = .467 x CWS

13. The North Fork of the Republican River in Nebraska and the Main Stem of the Republican River between the junction of the North Fork and the Arikaree River and the Republican River near Hardy

CBCU Colorado = GWc

CBCU Kansas =

(Courtland Canal at Kansas-Nebraska State Line Gage Stn No. 06852500
deliveries of Republican River water to Lovewell Reservoir by the Courtland Canal) x (1-%BRF)

+ (Diversions of Republican River water from Lovewell Reservoir by the Courtland Canal below Lovewell) x (1-%BRF)
+ Net Harlan County Lake Ev charged to Kansas
+ Lovewell Reservoir Ev charged to the Republican River water

+ share of the transportation loss of the Courtland Canal through Nebraska
+ % x Pk
+ GWk

CBCU Nebraska =

% x Deliveries from Courtland Canal to Nebraska lands
+ Superior Canal x (1-%BRF)
+ Franklin Pump Canal x (1-%BRF)
+ Franklin Canal x (1-%BRF)
+ Naponee Canal x (1-%BRF)
+ Cambridge Canal x (1-%BRF)
+ Bartley Canal x (1-%BRF)
+ Meeker-Driftwood Canal x (1-%BRF)
+ .9 x CBCU Red Willow Canal
+ % x Pn
+ GWn
+ Harry Strunk Lake Ev
+ Swanson Lake Ev
+ .9 x Hugh Butler Lake Ev
+ Net Harlan County Lake Ev charged to Nebraska
+ share of the transportation loss of the Courtland Canal through Nebraska
+ EvNFRn

VWS =

Republican River near Hardy Gage Stn. No. 06853500
North Fork of the Republican River at the State Line, Stn. No. 06823000
Arikaree Gage at Haigler Stn. No. 06821500
Buffalo Creek near Haigler Gage Stn. No. 06823500
Rock Creek at Parks Gage Stn. No. 06824000
South Fork Republican River near Benkelman Gage Stn. No. 06827500
Frenchman Creek in Culbertson Stn. No. 06835500

Driftwood Creek near McCook Gage Stn. No. 06836500
Red Willow Creek near Red Willow Gage Stn. No. 06838000
Medicine Creek below Harry Strunk Lake Gage Stn. No. 06842500
Sappa Creek near Stamford Gage Stn. No. 06847500
Prairie Dog Creek near Woodruff, Kansas Stn. No. 68-485000

+ Change in Storage Harlan County Lake
+ Change in Storage Swanson Lake
+ Harlan County Lake Ev
+ Swanson Lake Ev

+ Courtland Canal at State-line Gage – Return Flow to Republican River from Kansas Courtland Canal
+ Diversion Courtland Canal – Courtland Canal at State-line Gage
Return flows to Republican River from Courtland Canal loss in Nebraska

+ % x Deliveries Courtland Canal to Nebraska lands

+ CBCU Superior Canal
+ CBCU Franklin Pump Canal
+ CBCU Franklin Canal
+ CBCU Naponee Canal
+ CBCU Cambridge Canal
+ CBCU Bartley Canal
+ CBCU Meeker-Driftwood Canal

Red Willow Canal RF to Main Stem
Culbertson Canal RF to Main Stem
Culbertson Canal Extension RF to Main Stem
Haigler Canal RF to Main Stem
+ .24 x Meeker Driftwood Canal RF which went to Driftwood Creek
+ GWn

+ EvNFRn
IWS

CWS = VWS – Change in Storage Harlan County Lake – Change in Storage Swanson Lake – FF

Allocation Kansas = .511 x CWS

Allocation Nebraska = .489 x CWS

Return flow from Courtland Canal in Kansas above Lovewell = .015 x Courtland Canal at State Line

Return flow from Courtland Canal loss from head gate to the State Line =
(Diversion – Courtland Canal at State Line – Deliveries to Nebraska) x .82

Loss from Return flow from Courtland Canal loss from head gate to the State Line =
(Diversion – Courtland Canal at State Line – Deliveries to Nebraska) x .18

Courtland Canal loss from head gate to State Line charged to Kansas = Loss from Return flow from Courtland Canal loss from head gate to the State Line x (Courtland Canal at the State Line/ (Courtland Canal at the State Line + Deliveries to Nebraska))

Courtland Canal loss from head gate to the State Line Charged to Nebraska = Total loss minus loss charged to Kansas

Net Evaporation from Lovewell Reservoir charged to Republican River = Net Lovewell Ev x Inflow from the Courtland Canal/(Inflow from the Courtland Canal + Inflow from White Rock Creek)

V. Annual Data/Information Requirements, Reporting, and Verification

The following information for the previous calendar year shall be provided to the members of the RRCA Engineering Committee by April 15th of each year, unless otherwise specified.

All information shall be provided in electronic format, if available.

Each State agrees to provide all information from their respective State that is needed for the Republican River Groundwater Model and RRCA Accounting Procedures and Reporting Requirements, including but not limited to the following:

A. Annual Reporting

1. Surface water diversions and irrigated acreage: each State will tabulate the canal, ditch, and other surface water diversions that are required by RRCA annual compact accounting and the RRCA Groundwater Model on a monthly format (or a procedure to distribute annual data to a monthly basis) and will forward the surface water diversions to the other States. This will include available diversion, wasteway, and farm delivery data for canals diverting from the Platte River that contribute to Imported Water Supply into the Basin. Each State will provide the water right number, type of use, system type, location, diversion amount, and acres irrigated.

2. Groundwater pumping and irrigated acreage: each State will tabulate and provide all groundwater well pumping estimates that are required for the RRCA Groundwater Model to the other States.

Colorado – will provide an estimate of pumping based on a county format that is based upon system type, Crop Irrigation Requirement (CIR), irrigated acreage, crop distribution, and irrigation efficiencies. Colorado will require installation of a totalizing flow meter, installation of an hours meter with a measurement of the pumping rate, or determination of a power conversion coefficient for 10% of the active wells in the Basin by December 31, 2005. Colorado will also provide an annual tabulation for each groundwater well that measures groundwater pumping by a totalizing flow meter, hours meter or power conversion coefficient that includes: the groundwater well permit number, location, reported hours, use, and irrigated acreage.

Kansas – will provide an annual tabulation by each groundwater well that includes: water right number, groundwater pumping determined by a meter on each well (or group of wells in a manifold system) or by reported hours of use and rate; location; system type (gravity, sprinkler, LEPA, drip, etc.); and irrigated acreage. Crop distribution will be provided on a county basis.

Nebraska – will provide an annual tabulation through the representative Natural Resource District (NRD) in Nebraska that includes: the well registration number or other ID number; groundwater pumping determined by a meter on each well (or group of wells in a manifold system) or by reported hours of use and rate; wells will be identified by: location; system type (gravity, sprinkler, LEPA, drip, etc.); and irrigated acreage. Crop distribution will be provided on a county basis.

3. Climate information: each State will tabulate and provide precipitation, temperature, relative humidity or dew point, and solar radiation for the following climate stations:

State	Identification	Name
Colorado	C050109	Akron 4 E
Colorado	C051121	Burlington
Colorado	C054413	Julesburg
Colorado	C059243	Wray
Kansas	C140439	Atwood 2 SW
Kansas	C141699	Colby 1SW
Kansas	C143153	Goodland
Kansas	C143837	Hoxie
Kansas	C145856	Norton 9 SSE
Kansas	C145906	Oberlin1 E
Kansas	C147093	Saint Francis
Kansas	C148495	Wakeeny
Nebraska	C250640	Beaver City
Nebraska	C250810	Bertrand
Nebraska	C252065	Culbertson
Nebraska	C252690	Elwood 8 S
Nebraska	C253365	Gothenburg
Nebraska	C253735	Hebron
Nebraska	C253910	Holdredge
Nebraska	C254110	Imperial
Nebraska	C255090	Madrid
Nebraska	C255310	McCook
Nebraska	C255565	Minden
Nebraska	C256480	Palisade
Nebraska	C256585	Paxton
Nebraska	C257070	Red Cloud
Nebraska	C258255	Stratton
Nebraska	C258320	Superior
Nebraska	C258735	Upland
Nebraska	C259020	Wauneta 3 NW

4. Crop Irrigation Requirements: each State will tabulate and provide estimates of crop irrigation requirement information on a county format. Each State will provide the percentage of the crop irrigation requirement met by pumping; the percentage of groundwater irrigated lands served by sprinkler or flood irrigation systems, the crop irrigation requirement; crop distribution; crop coefficients; gain in soil moisture from winter and spring precipitation, net crop irrigation requirement; and/or other information necessary to compute a soil/water balance.

5. Streamflow Records from State-Maintained Gaging Records: streamflow gaging records from the following State maintained gages will be provided:

Station No	Name
00126700	Republican River near Trenton
06831500	Frenchman Creek near Imperial
06832500	Frenchman Creek near Enders
06835000	Stinking Water Creek near Palisade
06837300	Red Willow Creek above Hugh Butler Lake
06837500	Red Willow Creek near McCook
06841000	Medicine Creek above Harry Strunk Lake
06842500	Medicine Creek below Harry Strunk Lake
06844000	Muddy Creek at Arapahoe
06844210	Turkey Creek at Edison
06847000	Beaver Creek near Beaver City
	Republican River at Riverton
06851500	Thompson Creek at Riverton
06852000	Elm Creek at Amboy
	Republican River at the Superior-Courtland Diversion Dam

6. Platte River Reservoirs: the State of Nebraska will provide the end-of-month contents, inflow data, outflow data, area-capacity data,

and monthly net evaporation, if available, from Johnson Lake; Elwood Reservoir; Sutherland Reservoir; Maloney Reservoir; and Jeffrey Lake.

7. Water Administration Notification: the State of Nebraska will provide the following information that describes the protection of reservoir releases from Harlan County Lake and for the administration of water rights junior in priority to February 26, 1948:

> Date of notification to Nebraska water right owners to curtail their diversions, the amount of curtailment, and length of time for curtailment.
> The number of notices sent.
> The number of diversions curtailed and amount of curtailment in the Harlan County Lake to Guide Rock reach of the Republican River.

8. Moratorium: Each State will provide a description of all new Wells constructed in the Basin Upstream of Guide Rock (including the owner, location (legal description), depth and diameter or dimension of the constructed water well, casing and screen information, static water level, yield of the water well in gallons per minute or gallons per hour, and intended use of the water well.

Designation whether the Well is a:

a. Test hole;

b. Dewatering Well with an intended use of one year or less;

c. Well designed and constructed to pump fifty gallons per minute or less;

d. Replacement Water Well, including a description of the Well that is replaced providing the information described above for new Wells and a description of the historic use of the Well that is replaced;

e. Wells necessary to alleviate an emergency situation involving provision of water for human consumption, including a brief description of the nature of the emergency situation and the amount of water intended to be pumped by and the length of time of operation of the new Well;

f. Transfer Well, including a description of the Well that is transferred providing the information described above for new Wells and a description of the Historic Consumptive Use of the Well that is transferred;

g. Wells for municipal and/or industrial expansion of use;

h. Well in the Basin in Northwest Kansas or Colorado. Kansas and Colorado will provide the information described above for new Wells along with copies of any other information that is required to be filed with either State of local agencies under the laws, statutes, rules and regulations in existence as of April 30, 2002, and;

i. Any changes in State law in the previous year relating to existing Moratorium.

9. Non-Federal Reservoirs: Each State will conduct an inventory of Non Federal Reservoirs by December 31, 2004, for inclusion in the annual Compact Accounting. The inventory shall

include the following information: the location, capacity (in Acre-feet) and area (in acres) at the principal spillway elevation of each Non-Federal Reservoir. The States will annually provide any updates to the initial inventory of Non-Federal Reservoirs, including enlargements that are constructed in the previous year.

Owners/operators of Non-Federal Reservoirs with 200 Acre-feet of storage capacity or greater at the principal spillway elevation will be required to provide an area-capacity survey from State-approved plans or prepared by a licensed professional engineer or land surveyor.

B. RRCA Groundwater Model Data Input Files

1. Monthly groundwater pumping, surface water recharge, groundwater recharge, and precipitation recharge provided by county and indexed to the one square mile cell size.

2. Potential Evapotranspiration rate is set as a uniform rate for all phreatophyte vegetative classes – the amount is X at Y climate stations and is interpolated spatially using kriging.

C. Inputs to RRCA Accounting

1. Surface Water Information

a. Streamflow gaging station records: obtained as preliminary USGS or Nebraska streamflow records, with adjustments to reflect a calendar year, at the following locations:

Arikaree River at Haigler, Nebraska
North Fork Republican River at Colorado-Nebraska state line
Buffalo Creek near Haigler, Nebraska
Rock Creek at Parks, Nebraska
South Fork Republican River near Benkelman, Nebraska
Frenchman Creek at Culbertson, Nebraska
Red Willow Creek near Red Willow, Nebraska
Medicine Creek below Harry Strunk Lake, Nebraska*
Beaver Creek near Beaver City, Nebraska*
Sappa Creek near Stamford, Nebraska
Prairie Dog Creek near Woodruff, Kansas
Courtland Canal at Nebraska-Kansas state line
Republican River near Hardy, Nebraska
Republican River at Superior-Courtland Diversion Dam near Guide Rock, Nebraska (new)*

b. Federal reservoir information: obtained from the United States Bureau of Reclamation:

Daily free water surface evaporation, storage, precipitation, reservoir release information, and updated area-capacity tables.

Federal Reservoirs:
Bonny Reservoir
Swanson Lake
Harry Strunk Lake
Hugh Butler Lake

Enders Reservoir
Keith Sebelius Lake
Harlan County Lake
Lovewell Reservoir

c. Non-federal reservoirs obtained by each state: an updated inventory of reservoirs that includes the location, surface area (acres), and capacity (in Acre-feet), of each non-federal reservoir with storage capacity of fifteen (15) Acre-feet or greater at the principal spillway elevation. Supporting data to substantiate the average surface water areas that are different than the presumptive average annual surface area may be tendered by the offering State.

d. Diversions and related data from USBR

Irrigation diversions by canal, ditch, and pumping station that irrigate more than two (2) acres
Diversions for non-irrigation uses greater than 50 Acre-feet
Farm Deliveries
Wasteway measurements
Irrigated acres

e. Diversions and related data – from each respective State

Irrigation diversions by canal, ditch, and pumping station that irrigate more than two (2) acres
Diversions for non-irrigation uses greater than 50 Acre-feet
Wasteway measurements, if available

2. Groundwater Information (from the RRCA Groundwater model as output files as needed for the accounting procedures)

a. Imported water – mound credits in amount and time that occur in defined streamflow points/reaches of measurement or compliance – ex: gaging stations near confluence or state lines

b. Groundwater depletions to streamflow (above points of measurement or compliance – ex: gaging stations near confluence or state lines)

3. Summary The aforementioned data will be aggregated by Sub-basin as needed for RRCA accounting.

D. Verification

1. Documentation to be Available for Inspection Upon Request

a. Well permits/ registrations database
b. Copies of well permits/ registrations issued in calendar year
c. Copies of surface water right permits or decrees
d. Change in water right/ transfer historic use analyses
e. Canal, ditch, or other surface water diversion records
f. Canal, ditch, or other surface water measurements
g. Reservoir storage and release records
h. Irrigated acreage

2. Site Inspection

a. Accompanied – reasonable and mutually acceptable schedule among representative state and/or federal officials.

b. Unaccompanied – inspection parties shall comply with all laws and regulations of the State in which the site inspection occurs.

TABLES

Table 1: Annual Virgin and Computed Water Supply, Allocations and Computed Beneficial Consumptive Uses by State, Main Stem and Sub-basin

Designated Drainage Basin	Col. 1: Virgin Water Supply	Col. 2 Computed Water Supply	Col. 3: Allocations				Col. 4: Computed Beneficial Consumptive Use		
			Colorado	Nebraska	Kansas	Unallocated	Colorado	Nebraska	Kansas
North Fork in Colorado									
Arikaree									
Buffalo									
Rock									
South Fork of Republican River									
Frenchman									
Driftwood									
Red Willow									
Medicine									
Beaver									
Sappa									
Prairie Dog									
North Fork of Republican River in Nebraska and Main Stem									
Total All Basins									
North Fork Of Republican River in Nebraska and Mainstem Including Unallocated Water									
Total									

Table 2: Original Compact Virgin Water Supply and Allocations

Designated Drainage Basin	Virgin Water Supply	Colorado Allocation	% of Total Drainage Basin Supply	Kansas Allocation	% of Total Drainage Basin Supply	Nebraska Allocation	% of Total Drainage Basin Supply	Unallo-cated	% of Total Drain-age Basin Supply
North Fork - CO	44,700	10,000	22.4			11,000	24.6	23,700	53.0
Arikaree River	19,610	15,400	78.5	1,000	5.1	3,300	16.8	-90	-0.4
Buffalo Creek	7,890					2,600	33.0	5,290	67.0
Rock Creek	11,000					4,400	40.0	6,600	60.0
South Fork	57,200	25,400	44.4	23,000	40.2	800	1.4	8,000	14.0
Frenchman Creek	98,500					52,800	53.6	45,700	46.4
Driftwood Creek	7,300			500	6.9	1,200	16.4	5,600	76.7
Red Willow Creek	21,900					4,200	19.2	17,700	80.8
Medicine Creek	50,800					4,6[illegible]	9.1	46,200	90.9
Beaver Creek	16,500	3,300	20.0	6,400	38.8	6,7[illegible]	40.6	100	0.6
Sappa Creek	21,400			8,800	41.1	8,800	41.1	3,800	17.8
Prairie Dog Creek	27,600			12,600	45.7	2,100	7.6	12,900	46.7
Sub-total Tributaries	384,400							175,500	
Main Stem + Blackwood Creek	94,500								
Main Stem + Unallocated	270,000			138,000	51.1	132,000	48.9		
Total	478,900	54,100		190,300		234,500			

Table 3A: Table to Be Used to Calculate Colorado's Five-Year Running Average Allocation and Computed Beneficial Consumptive Use for Determining Compact Compliance

Colorado				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive Use	Credits from Imported Water Supply	Difference between Allocation and Computed Beneficial Consumptive Use minus Imported Water Supply
Year t= -4				
Year t= -3				
Year t= -2				
Year t= -1				
CurrentYear t= 0				
Average				

Table 3B. Table to Be Used to Calculate Kansas's Five-Year Running Average Allocation and Computed Beneficial Consumptive Use for Determining Compact Compliance

Kansas				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive Use	Credits from Imported Water Supply	Difference between Allocation and Computed Beneficial Consumptive Use minus Imported Water Supply
Year t= -4				
Year t= -3				
Year t= -2				
Year t= -1				
CurrentYear t= 0				
Average				

Table 3C. Table to Be Used to Calculate Nebraska's Five-Year Running Average Allocation and Computed Beneficial Consumptive Use for Determining Compact Compliance

Nebraska				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive Use	Credits from Imported Water Supply	Difference between Allocation and Computed Beneficial Consumptive Use minus Imported Water Supply
Year T= -4				
Year T= -3				
Year T= -2				
Year T= -1				
CurrentYear T= 0				
Average				

Table 4A: Colorado Compliance with the Sub-basin Non-impairment Requirement

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
Sub-basin	Colorado Sub-basin Allocation (5-year running average)	Unallocated Supply (5-year running average)	Credits from Imported Water Supply (5-year running average)	Total Supply Available = Col 1+ Col 2 + Col 3 (5-year running average)	Colorado Computed Beneficial Consumptive Use (5-year running average)	Difference Between Available Supply and Computed Beneficial Consumptive Use = Col 4 – Col 5 (5-year running average)
North Fork Republican River Colorado						
Arikaree River						
South Fork Republican River						
Beaver Creek						

Table 4B: Kansas Compliance with the Sub-basin Non-impairment Requirement

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7
Sub-basin	Kansas Sub-basin Allocation (5-year running average)	Unallocated Supply (5-year running average)	Unused Allocation from Colorado (5-year running average)	Credits from Imported Water Supply (5-year running average)	Total Supply Available = Col 1+ Col 2+ Col 3 + Col 4 (5-year running average)	Kansas Computed Beneficial Consumptive Use (5-year running average)	Difference Between Available Supply and Computed Beneficial Consumptive Use = Col 5 – Col 6 (5-year running average)
Arikaree River							
South Fork Republican River							
Driftwood Creek							
Beaver Creek							
Sappa Creek							
Prairie Dog Creek							

Table 5A: Colorado Compliance During Water-Short Year Administration

Colorado				
	Col. 1	Col. 2	Col. 3	Col 4
Year	Allocation minus Allocation for Beaver Creek	Computed Beneficial Consumptive Use minus Computed Beneficial Consumptive Use for Beaver Creek	Credits from Imported Water Supply excluding Beaver Creek	Difference between Allocation and Computed Beneficial Consumptive Use Minus Imported Water Supply for All Basins Except Beaver Creek Col 1 - (Col 2 - Col 3)
Year T= -4				
Year T= -3				
Year T= -2				
Year T= -1				
Current Year T= 0				
Average				

Table 5B: Kansas Compliance During Water-Short Year Administration

Kansas						
Year	Allocation			Computed Beneficial Consumptive Use	Credits from Imported Water	Difference Between Allocation and Consumptive Use Minus Imported Water Supply
Column	1	2	3	4	5	6
	Sum Sub-basins	Kansas's Share of the Unallocated Supply	Total Col 1 + Col 2			Col 3 – (Col 4 – Col 5)
Previous Year						
Current Year						
Average						

Table 5C Nebraska Compliance During Water-Short Year Administration

Nebraska								
Year	Allocation			Computed Beneficial Consumptive Use (CBCU)			Credits from Imported Water	Difference Between Allocation and Consumptive Use Minus Imported Water Supply Above Guide Rock
Column	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8
	Statewide Allocation	Allocation below Guide Rock	Statewide Allocation above Guide Rock	State-wide CBCU	CBCU below Guide Rock	Statewide CBCU above Guide Rock	Credits above Guide Rock	Col 3 – (Col 6 – Col 7)
Previous Year								
Current Year								
Average								

Table 5D: Nebraska Compliance Under a Alternative Water-Short Year Administration Plan

Year	Allocation			Computed Beneficial Consumptive Use (CBCU)			Credits from Imported Water	Difference Between Allocation and Consumptive Use Minus Imported Water Supply Above Guide Rock
Column	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8
	Statewide Allocation	Allocation below Guide Rock	Statewide Allocation above Guide Rock	State-wide CBCU	CBCU below Guide Rock	Statewide CBCU above Guide Rock	Credits above Guide Rock	Col 3 – (Col 6- Col 7)
Year = -2								
Year = -1								
Current Year								
Three-Year Average								
Sum of Previous Two-year Difference								
Expected Decrease in CBCU Under Plan								

Table 5E: Nebraska Tributary Compliance During Water-Short Year Administration

Year	Sum of Nebraska Sub-basin Allocations	Sum of Nebraska's Share of Sub-basin Unallocated Supplies	Total Available Water Supply for Nebraska	Computed Beneficial Consumptive Use	Imported Water Supply Credit	Difference between Allocation And Computed Beneficial Consumptive Use with Imported Water Credit As an Offset
	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
Previous Year						Col 3 -(Col 4-Col 5)
Current Year						
Average						

Figure 1

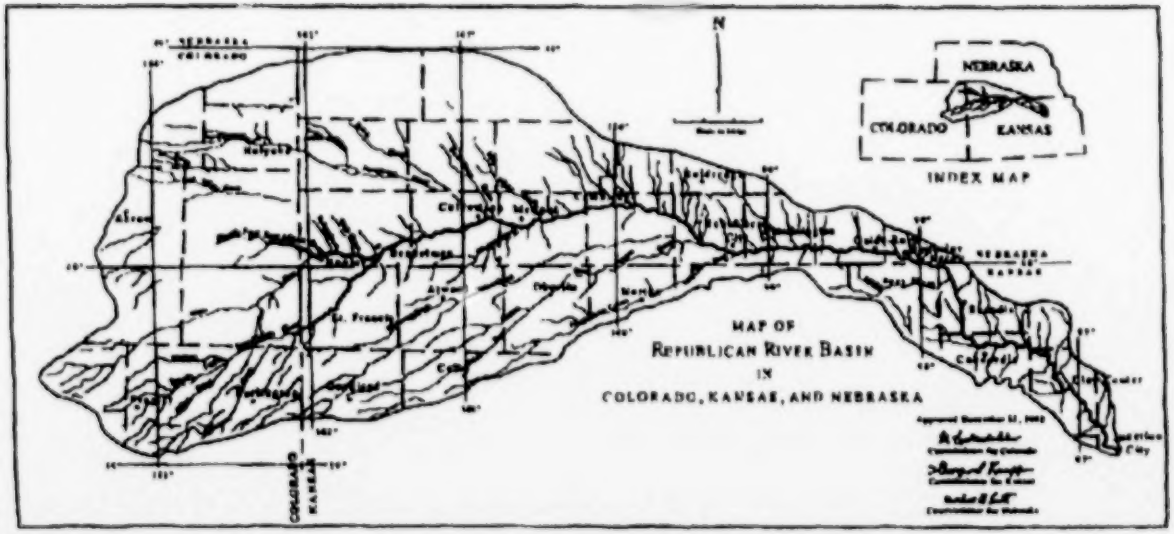

N
NEBRASKA
COLORADO
KANSAS
INDEX MAP
MAP OF
REPUBLICAN RIVER BASIN
IN
COLORADO, KANSAS, AND NEBRASKA

Figure 2

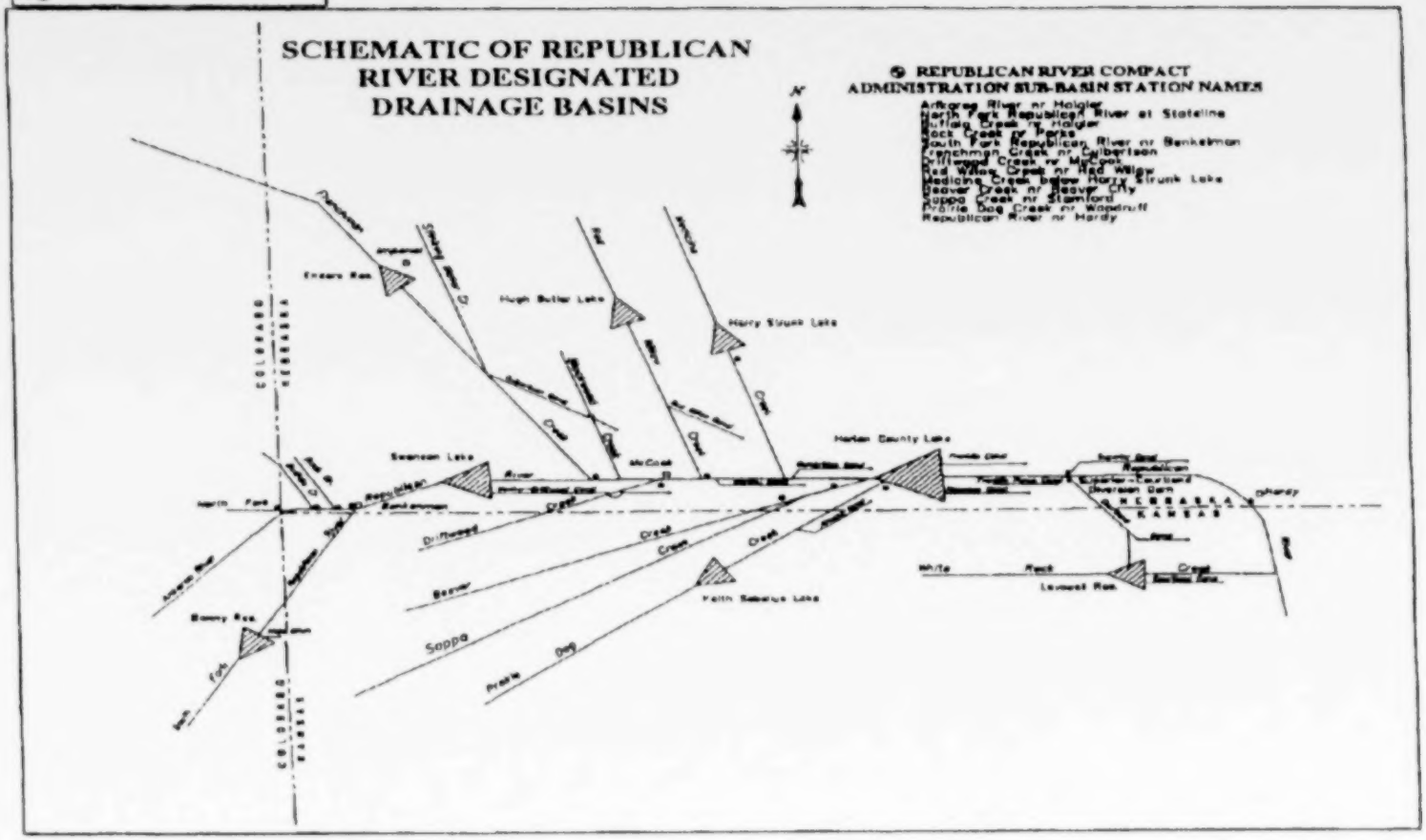
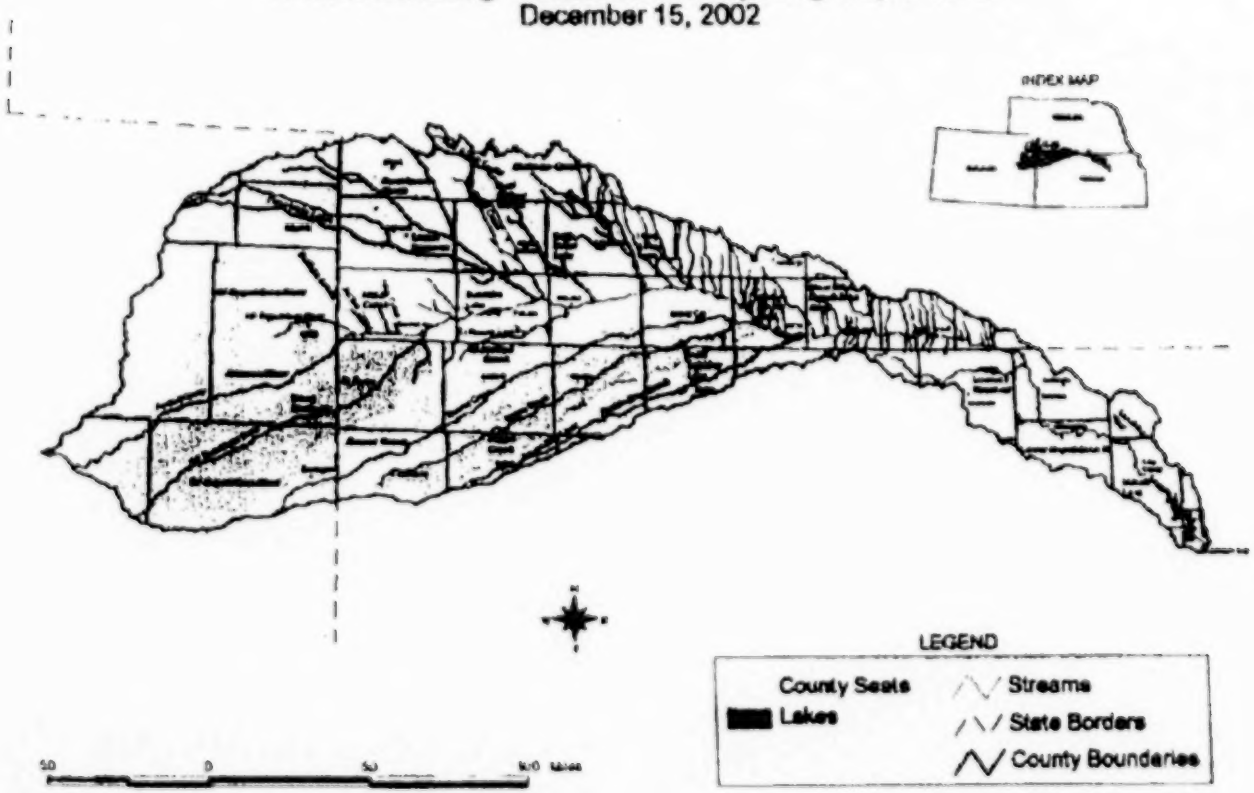

SCHEMATIC OF REPUBLICAN RIVER DESIGNATED DRAINAGE BASINS
REPUBLICAN RIVER COMPACT ADMINISTRATION SUB-BASIN STATION NAMES
Arikaree River nr Haigler
North Fork Republican River at Stateline
Buffalo Creek nr Haigler
Rock Creek nr Parks
South Fork Republican River nr Benkelman
Frenchman Creek nr Culbertson
Driftwood Creek nr McCook
Red Willow Creek nr Red Willow
Medicine Creek below Harry Strunk Lake
Beaver Creek nr Beaver City
Sappa Creek nr Stamford
Prairie Dog Creek nr Woodruff
Republican River nr Hardy
Enders Res.
Hugh Butler Lake
Harry Strunk Lake
Swanson Lake
Harlan County Lake
Keith Sebelius Lake
Bonny Res.
Lovewell Res.
Sappa
Beaver
Driftwood
Prairie Dog
Creek
Republican
Hardy
COLORADO
NEBRASKA
KANSAS

Figure 3 - Map Showing Sub-basins, Streams, and the Basin Boundaries
RRCA Accounting Procedures and Reporting Requirements
December 15, 2002



Attachment 1: Sub-basin Flood Flow Thresholds

Sub-basin	Sub-basin Flood Flow Threshold Acre-feet per Year[3]
Arikaree River	16,400
North Fork of Republican River	33,900
Buffalo Creek	4,800
Rock Creek	9,800
South Fork of Republican River	30,400
Frenchman Creek	51,900
Driftwood Creek	9,400
Red Willow Creek	15,100
Medicine Creek	55,100
Beaver Creek	13,900
Sappa Creek	26,900
Prairie Dog	15,700

[3] Flows considered to be Flood Flows are flows in excess of the 94% flow based on a flood frequency analysis for the years 1971-2000. The Gaged Flows are measured after depletions by Beneficial Consumptive Use and change in reservoir storage.

Attachment 2: Description of the Consensus Plan for Harlan County Lake

The Consensus Plan for operating Harlan County Lake was conceived after extended discussions and negotiations between Reclamation and the Corps. The agreement shaped at these meetings provides for sharing the decreasing water supply into Harlan County Lake. The agreement provides a consistent procedure for: updating the reservoir elevation/storage relationship, sharing the reduced inflow and summer evaporation, and providing a January forecast of irrigation water available for the following summer.

During the interagency discussions the two agencies found agreement in the following areas:

- The operating plan would be based on current sediment accumulation in the irrigation pool and other zones of the project.
- Evaporation from the lake affects all the various lake uses in proportion to the amount of water in storage for each use.
- During drought conditions, some water for irrigation could be withdrawn from the sediment pool.
- Water shortage would be shared between the different beneficial uses of the project, including fish, wildlife, recreation and irrigation.

To incorporate these areas of agreement into an operation plan for Harlan County Lake, a mutually acceptable procedure addressing each of these items was negotiated and accepted by both agencies.

1. Sediment Accumulation.

The most recent sedimentation survey for Harlan County project was conducted in 1988, 37 years after the lake began operation. Surveys were also performed in 1962 and 1972; however, conclusions reached after the 1988 survey indicate that the previous calculations are unreliable. The 1988 survey indicates that, since closure of the dam in 1951, the accumulated sediment is distributed in each of the designated pools as follows:

Flood Pool	2,387 Acre-feet
Irrigation Pool	4,853 Acre-feet
Sedimentation Pool	33,527 Acre-feet

To insure that the irrigation pool retained 150,000 Acre-feet of storage, the bottom of the irrigation pool was lowered to 1,932.4 feet, msl, after the 1988 survey.

To estimate sediment accumulation in the lake since 1988, we assumed similar conditions have occurred at the project during the past 11 years. Assuming a consistent rate of deposition since 1988, the irrigation pool has trapped an additional 1,430 Acre-feet.

A similar calculation of the flood control pool indicates that the flood control pool has captured an additional 704 Acre-feet for a total of 3,090 Acre-feet since construction.

The lake elevations separating the different pools must be adjusted to maintain a 150,000-acre-foot irrigation pool and a 500,000-acre-foot flood control pool. Adjusting these elevations results in the following new elevations for the respective pools (using the 1988 capacity tables).

Top of Irrigation Pool	1,945.70 feet, msl
Top of Sediment Pool	1,931.75 feet, msl

Due to the variability of sediment deposition, we have determined that the elevation capacity relationship should be updated to reflect current conditions. We will complete a new sedimentation survey of Harlan County Lake this summer, and new area capacity tables should be available by early next year. The new tables may alter the pool elevations achieved in the Consensus Plan for Harlan County Lake.

2. Summer Evaporation.

Evaporation from a lake is affected by many factors including vapor pressure, wind, solar radiation, and salinity of the water. Total water loss from the lake through evaporation is also affected by the size of the lake. When the lake is lower, the surface area is smaller and less water loss occurs. Evaporation at Harlan County Lake has been estimated since the lake's construction using a Weather Service Class A pan which is 4 feet in diameter and 10 inches deep. We and Reclamation have jointly reviewed this information and assumed future conditions to determine an equitable method of distributing the evaporation loss from the project between irrigation and the other purposes.

During those years when the irrigation purpose expected a summer water yield of 119,000 Acre-feet or more, it was determined that an adequate water supply existed and no sharing of evaporation was necessary. Therefore, evaporation evaluation focused on the lower pool elevations when water was scarce. Times of water

shortage would also generally be times of higher evaporation rates from the lake.

Reclamation and we agreed that evaporation from the lake during the summer (June through September) would be distributed between the irrigation and sediment pools based on their relative percentage of the total storage at the time of evaporation. If the sediment pool held 75 percent of the total storage, it would be charged 75 percent of the evaporation. If the sediment pool held 50 percent of the total storage, it would be charged 50 percent of the evaporation. At the bottom of the irrigation pool (1,931.75 feet, msl) all of the evaporation would be charged to the sediment pool.

Due to downstream water rights for summer inflow, neither the irrigation nor the sediment pool is credited with summer inflow to the lake. The summer inflows would be assumed passed through the lake to satisfy the water right holders. Therefore, Reclamation and we did not distribute the summer inflow between the project purposes.

As a result of numerous lake operation model computer runs by Reclamation, it became apparent that total evaporation from the project during the summer averaged about 25,000 Acre-feet during times of lower lake elevations. These same models showed that about 20 percent of the evaporation should be charged to the irrigation pool, based on percentage in storage during the summer months. About 20 percent of the total lake storage is in the irrigation pool when the lake is at elevation 1,935.0 feet, msl. As a result of the joint study, Reclamation and we agreed that the irrigation pool would be credited with 20,000 Acre-feet of water during times of drought to share the summer evaporation loss.

Reclamation and we further agreed that the sediment pool would be assumed full each year. In essence, if the actual pool elevation were below 1,931.75 feet, msl, in January, the irrigation pool would contain a negative storage for the purpose of calculating available water for irrigation, regardless of the prior year's summer evaporation from sediment storage.

3. Irrigation withdrawal from sediment storage.

During drought conditions, occasional withdrawal of water from the sediment pool for irrigation is necessary. Such action is contemplated in the Field Working Agreement and the Harlan County Lake Regulation Manual: "Until such time as sediment fully occupies the allocated reserve capacity, it will be used for irrigation and various conservation purposes, including public health, recreation, and fish and wildlife preservation."

To implement this concept into an operation plan for Harlan County Lake, Reclamation and we agreed to estimate the net spring inflow to Harlan County Lake. The estimated inflow would be used by the Reclamation to provide a firm projection of water available for irrigation during the next season.

Since the construction of Harlan County Lake, inflows to the lake have been depleted by upstream irrigation wells and farming practices. Reclamation has recently completed an in-depth study of these depleted flows as a part of their contract renewal process. The study concluded that if the current conditions had existed in the basin since 1931, the average spring inflow to the project would have been 57,600 Acre-feet of water. The study further concluded that the evaporation would have been

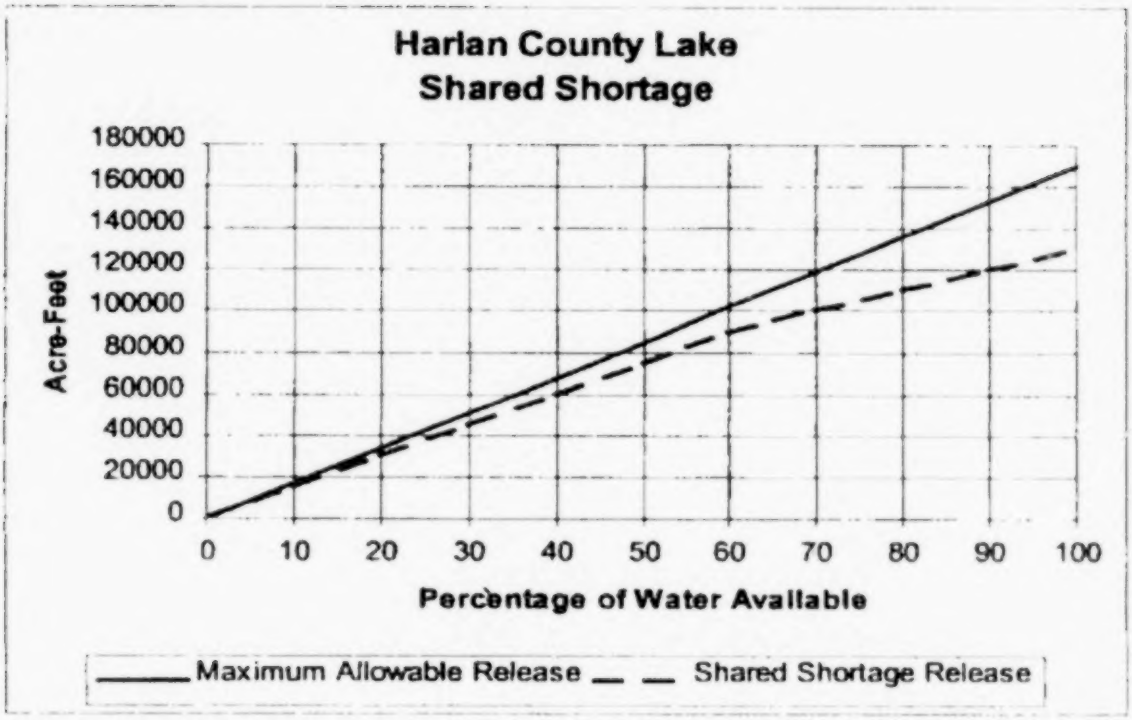
8,800 Acre-feet of water during the same period. Reclamation and we agreed to use these values to calculate the net inflow to the project under the current conditions.

In addition, both agencies also recognized that the inflow to the project could continue to decrease with further upstream well development and water conservation farming. Due to these concerns, Reclamation and we determined that the previous 5-year inflow values would be averaged each year and compared to 57,600 Acre-feet. The inflow estimate for Harlan County Lake would be the smaller of these two values.

The estimated inflow amount would be used in January of each year to forecast the amount of water stored in the lake at the beginning of the irrigation season. Based on this forecast, the irrigation districts would be provided a firm estimate of the amount of water available for the next season. The actual storage in the lake on May 31 would be reviewed each year. When the actual water in storage is less than the January forecast, Reclamation may draw water from sediment storage to make up the difference.

4. Water Shortage Sharing.

A final component of the agreement involves a procedure for sharing the water available during times of shortage. Under the shared shortage procedure, the irrigation purpose of the project would remove less water than otherwise allowed and alleviate some of the adverse effects to the other purposes. The procedure would also extend the water supply during times of drought by "banking" some water for the next irrigation season. The following graph illustrates the shared shortage releases.



5. Calculation of Irrigation Water Available

Each January, the Reclamation would provide the Bostwick irrigation districts a firm estimate of the quantity of water available for the following season. The firm estimate of water available for irrigation would be calculated by using the following equation and shared shortage adjustment:

> Storage + Summer Sediment Pool Evaporation + Inflow – Spring Evaporation = Maximum Irrigation Water Available

The variables in the equation are defined as:

- Maximum Irrigation Water Available. Maximum irrigation supply from Harlan County Lake for that irrigation season.
- Storage. Actual storage in the irrigation pool at the end of December. The sediment pool is assumed full. If the

pool elevation is below the top of the sediment pool, a negative irrigation storage value would be used.

- Inflow. The inflow would be the smaller of the past 5-year average inflow to the project from January through May, or 57,600 Acre-feet.
- Spring Evaporation. Evaporation from the project would be 8,800 Acre-feet which is the average January through May evaporation.
- Summer Sediment Pool Evaporation. Summer evaporation from the sediment pool during June through September would be 20,000 Acre-feet. This is an estimate based on lower pool elevations, which characterize the times when it would be critical to the computations.

6. Shared Shortage Adjustment

To ensure that an equitable distribution of the available water occurs during short-term drought conditions, and provide for a "banking" procedure to increase the water stored for subsequent years, a shared shortage plan would be implemented. The maximum water available for irrigation according to the above equation would be reduced according to the following table. Linear interpolation of values will occur between table values.

Shared Shortage Adjustment Table

Irrigation Water Available (Acre-feet)	Irrigation Water Released (Acre-feet)
0	0
17,000	15,000
34,000	30,000
51,000	45,000
68,000	60,000
85,000	75,000
102,000	90,000
119,000	100,000
136,000	110,000
153,000	120,000
170,000	130,000

7. Annual Shutoff Elevation for Harlan County Lake

The annual shutoff elevation for Harlan County Lake would be estimated each January and finally established each June.

The annual shutoff elevation for irrigation releases will be estimated by Reclamation each January in the following manner:

1. Estimate the May 31 Irrigation Water Storage (IWS) (Maximum 150,000 Acre-feet) by taking the December 31 irrigation pool storage plus the January-May inflow estimate (57,600 Acre-feet or the average inflow for the last 5-year period, whichever is less) minus the January-May evaporation estimate (8,800 Acre-feet).

2. Calculate the estimated Irrigation Water Available, including all summer evaporation, by adding the

Estimated Irrigation Water Storage (from item 1) to the estimated sediment pool summer evaporation (20,000 AF).

3. Use the above Shared Shortage Adjustment Table to determine the acceptable Irrigation Water Release from the Irrigation Water Available.

4. Subtract the Irrigation Water Release (from item 3) from the Estimated IWS (from item 1). The elevation of the lake corresponding to the resulting irrigation storage is the Estimated Shutoff Elevation. The shutoff elevation will not be below the bottom of the irrigation pool if over 119,000 AF of water is supplied to the districts, nor below 1,927.0 feet, msl. If the shutoff elevation is below the irrigation pool, the maximum irrigation release is 119,000 AF.

The annual shutoff elevation for irrigation releases would be finalized each June in accordance with the following procedure:

1. Compare the estimated May 31 IWS with the actual May 31 IWS.

2. If the actual end of May IWS is less than the estimated May IWS, lower the shutoff elevation to account for the reduced storage.

3. If the actual end of May IWS is equal to or greater than the estimated end of May IWS, the estimated shutoff elevation is the annual shutoff elevation.

4. The shutoff elevation will never be below elevation1,927.0 feet, msl, and will not be below the bottom of the irrigation pool if more than 119,000 Acre-feet of water is supplied to the districts.

Attachment 3 Inflows to Harlan County Lake 1993 Level of Development

BASELINE RUN - 1993 LEVEL INFLOW TO HARLAN COUNTY RESERVOIR

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1931	10.2	10.8	13.4	5.0	18.8	15.8	4.3	1.8	1.8	0.0	0.1	0.1	82.1
1932	6.8	16.6	18.5	4.6	3.8	47.6	3.8	2.8	4.8	0.0	0.0	0.4	109.7
1933	0.4	0.0	3.9	30.2	31.0	5.4	1.8	0.0	10.4	0.0	2.6	5.5	91.2
1934	2.1	0.0	3.2	1.8	0.7	7.3	0.8	0.0	1.3	0.0	2.2	0.0	19.4
1935	0.3	0.1	0.7	4.2	0.8	389.3	6.1	19.1	26.1	2.4	5.2	0.9	455.2
1936	0.3	0.0	11.9	0.0	35.9	4.7	0.4	0.0	1.8	0.0	1.6	3.8	60.4
1937	4.8	12.9	6.0	2.5	0.0	12.6	6.3	6.9	2.4	0.0	0.0	12.4	66.8
1938	9.9	7.8	8.7	10.4	18.7	8.6	7.3	7.8	4.9	0.2	0.0	4.7	89.0
1939	2.7	7.5	9.6	12.2	6.6	13.3	5.0	4.1	0.0	0.0	0.0	0.0	61.0
1940	0.0	0.0	12.2	5.2	4.6	23.7	2.8	3.2	0.0	3.6	0.0	1.4	56.7
1941	0.0	10.6	10.6	7.7	17.2	67.1	28.9	19.7	14.9	8.3	6.7	7.1	198.8
1942	3.3	10.6	0.5	34.1	30.8	83.9	11.7	10.9	36.5	3.1	8.7	0.3	234.4
1943	1.2	11.2	14.6	31.4	4.7	28.3	4.8	0.3	0.9	0.0	0.0	11.8	109.2
1944	0.1	4.3	9.0	43.1	31.9	63.9	26.6	15.4	0.5	0.3	3.0	4.5	202.6
1945	4.3	7.8	5.7	9.5	4.1	53.5	5.0	0.9	1.5	5.0	6.0	6.3	109.6
1946	5.9	11.2	9.3	4.9	7.0	3.1	1.6	11.4	28.1	129.9	25.0	12.1	249.5
1947	1.1	3.2	10.4	8.2	11.9	195.4	22.3	5.9	2.9	0.2	0.3	0.3	262.1
1948	6.2	9.8	24.1	5.4	0.2	39.8	13.5	6.8	4.2	0.0	0.1	0.1	110.2
1949	2.0	1.5	25.2	16.3	49.0	57.4	9.2	5.5	2.1	3.0	2.8	0.3	174.3
1950	0.3	5.7	10.8	10.9	28.9	10.1	12.7	9.3	7.8	7.2	3.8	3.1	110.6
1951	3.8	3.4	7.1	5.3	42.0	39.9	42.1	10.1	36.0	15.5	14.8	8.9	228.9
1952	16.4	21.4	26.3	23.8	34.6	4.0	9.3	3.1	1.5	11.7	4.3	0.1	156.5
1953	1.8	4.6	5.3	3.3	15.1	9.5	1.8	0.2	0.0	0.0	2.8	0.1	44.5
1954	1.0	6.8	1.9	3.2	7.1	2.4	0.0	1.2	0.0	0.0	0.0	0.0	23.6
1955	0.0	4.0	6.3	4.8	2.9	6.4	2.7	0.0	1.4	0.0	0.0	0.0	28.5
1956	1.6	3.4	2.9	2.4	1.3	1.5	0.0	0.6	0.0	0.0	0.0	0.0	13.7
1957	0.0	4.1	6.2	12.8	3.5	62.4	21.3	1.2	2.0	3.4	4.5	4.7	126.1
1958	0.8	3.0	14.2	14.0	18.7	1.3	3.4	2.2	0.0	0.4	0.0	0.6	58.6
1959	1.9	15.4	16.4	8.5	13.6	4.2	1.4	1.2	0.0	4.3	1.0	4.5	72.4
1960	1.4	12.3	71.4	23.9	21.7	53.7	14.1	3.2	0.0	0.0	0.2	2.8	204.7
1961	2.3	6.4	7.7	7.4	26.5	24.0	7.2	4.9	0.0	2.3	4.8	1.7	95.2

Attachment 3 Inflows to Harlan County Lake 1993 Level of Development

1962	4.5	9.1	16.2	9.9	14.4	42.6	41.6	21.1	2.3	8.7	8.3	5.7	184.4
1963	3.4	18.2	18.2	15.0	12.7	14.7	3.4	6.1	8.7	0.8	5.3	1.8	108.3
1964	5.4	7.6	8.3	8.4	9.9	11.9	7.2	6.5	2.4	1.9	1.4	2.3	73.2
1965	6.0	8.1	11.1	12.8	32.8	40.0	22.9	6.5	37.2	53.7	19.5	11.0	261.6
1966	8.9	21.4	15.7	11.4	12.0	34.7	12.4	2.5	3.5	5.4	6.8	5.7	140.4
1967	7.2	11.5	11.5	12.9	9.1	75.3	43.7	15.3	4.4	7.3	6.9	5.4	210.5
1968	3.9	10.2	8.5	11.6	10.8	12.5	3.1	2.7	1.6	2.0	4.3	3.4	74.6
1969	4.2	10.8	24.5	15.1	18.9	17.5	17.0	12.6	16.6	9.2	11.8	9.9	168.1
1970	3.5	8.7	8.5	10.5	11.1	7.7	4.6	3.2	0.5	3.3	4.7	4.5	70.8
1971	4.1	10.3	12.4	12.8	18.3	7.2	8.4	6.2	1.9	4.2	7.3	7.1	100.2
1972	5.5	8.1	9.2	8.3	14.8	8.5	6.5	4.4	0.1	2.9	7.6	4.1	80.0
1973	11.4	14.2	19.0	16.2	17.4	20.9	9.1	1.9	8.4	19.6	11.9	13.2	163.2
1974	13.2	13.4	12.0	14.3	15.4	17.2	5.5	0.0	0.0	0.0	4.9	5.5	101.4
1975	7.2	8.2	13.6	14.8	12.0	48.1	11.6	7.4	0.1	3.0	6.2	7.3	139.5
1976	7.0	10.2	10.1	16.0	12.1	3.5	2.2	1.8	0.9	1.0	3.2	3.1	71.1
1977	4.4	9.6	12.9	21.2	31.5	12.1	5.9	1.9	10.6	4.1	5.5	5.3	125.0
1978	5.0	6.5	20.6	12.9	11.8	3.8	0.0	1.0	0.0	0.0	0.3	1.6	63.5
1979	1.3	7.6	21.5	18.8	15.9	5.4	10.4	10.6	1.6	0.9	3.6	6.2	103.8
1980	5.7	9.3	11.6	15.2	10.4	2.1	2.5	0.0	0.0	0.0	2.5	2.2	61.5
1981	5.5	6.0	11.6	14.9	22.5	6.4	11.5	16.3	4.3	2.5	6.7	6.2	114.4
1982	5.3	12.5	17.9	14.3	26.8	27.1	8.9	2.7	0.0	6.5	6.3	15.5	143.8
1983	6.5	9.7	27.2	16.4	41.4	74.2	10.7	7.6	3.8	3.1	6.7	5.2	212.5
1984	6.8	14.6	17.2	32.9	40.6	15.5	8.1	4.5	0.0	5.5	4.8	6.2	156.7
1985	6.9	14.1	13.6	11.9	27.4	9.9	10.0	2.0	6.0	8.5	5.6	5.8	121.7
1986	9.1	9.4	12.2	11.7	34.3	13.0	13.5	4.6	3.3	5.9	5.4	7.1	129.5
1987	5.9	9.2	19.7	24.1	24.3	11.7	19.0	5.7	2.3	2.7	8.2	7.0	139.8
1988	6.2	13.7	11.6	15.2	15.2	7.0	17.9	10.4	0.6	2.0	5.9	5.4	111.1
1989	5.4	5.9	10.5	9.1	11.4	11.8	14.0	6.2	0.2	3.1	3.1	3.5	84.2
1990	6.6	7.7	13.2	9.7	15.5	1.4	4.3	10.7	0.6	3.2	2.0	2.7	77.6
1991	2.4	8.0	9.0	10.6	15.2	3.9	1.9	0.5	0.0	0.0	2.7	4.8	59.0
1992	8.0	8.8	12.7	8.5	4.5	6.1	6.5	9.4	2.4	6.9	6.7	5.2	85.7
1993	5.2	14.4	71.6	22.7	21.0	17.0	68.0	37.5	23.3	16.8	30.1	17.7	345.3
Avg	4.5	8.8	14.1	13.0	17.2	30.6	11.0	6.2	5.4	6.3	5.0	4.7	126.8

Attachment 4 Evaporation Loss Harlan County Lake 1993 Level of Development

BASELINE - 1993 LEVEL FLOWS - HARLAN COUNTY EVAPORATION

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1931	0.7	0.9	1.6	2.9	4.2	7.4	6.9	5.2	2.7	2.1	1.2	0.4	36.2
1932	0.6	0.8	1.5	2.7	4.1	5.0	6.8	5.0	2.7	2.1	1.2	0.4	32.9
1933	0.6	0.8	1.4	2.5	3.8	7.8	6.1	4.2	2.7	2.1	1.2	0.4	33.6
1934	0.6	0.8	1.4	2.4	4.5	6.5	8.0	6.2	2.7	2.0	1.2	0.4	36.7
1935	0.6	0.8	1.3	2.3	2.2	3.6	9.7	6.2	3.1	2.5	1.4	0.5	34.2
1936	0.7	0.9	1.6	2.9	5.5	6.8	8.7	6.5	2.7	2.1	1.2	0.4	40.0
1937	0.6	0.8	1.4	2.5	3.6	4.0	6.2	6.5	2.7	2.1	1.2	0.4	32.0
1938	0.6	0.9	1.5	2.7	3.4	4.9	6.5	5.7	2.7	2.1	1.2	0.4	32.6
1939	0.6	0.8	1.4	2.6	4.3	4.9	6.8	4.6	2.7	2.1	1.2	0.4	32.4
1940	0.6	0.8	1.4	2.4	3.5	5.0	6.5	4.6	2.7	2.1	1.2	0.4	31.2
1941	0.6	0.8	1.4	2.5	3.9	4.2	6.7	5.3	2.8	2.1	1.3	0.5	32.1
1942	0.6	0.9	1.5	2.8	4.0	5.2	8.3	5.1	3.2	2.5	1.5	0.5	36.1
1943	0.7	1.0	1.8	3.2	4.3	5.7	7.9	6.3	2.7	2.1	1.2	0.4	37.3
1944	0.6	0.8	1.4	2.7	4.2	5.3	7.0	5.8	3.5	2.6	1.5	0.5	35.9
1945	0.7	1.0	1.8	3.1	3.8	3.0	6.7	5.7	2.9	2.2	1.3	0.5	32.7
1946	0.6	0.9	1.6	2.8	3.5	5.1	5.6	4.4	2.9	2.7	1.8	0.6	32.5
1947	1.0	1.5	2.9	3.2	3.4	-1.2	5.8	5.3	3.7	1.7	0.5	0.1	27.9
1948	0.8	0.7	1.5	3.6	3.1	2.4	4.2	4.7	3.0	2.7	0.8	0.3	27.8
1949	0.1	0.9	0.7	1.8	1.1	0.7	6.5	4.1	3.1	1.7	1.5	0.4	22.6
1950	0.7	0.1	0.8	2.8	2.0	5.6	0.8	2.8	4.5	2.3	1.6	0.6	24.6
1951	0.5	0.2	2.1	0.7	-0.1	1.9	3.5	4.1	0.4	3.1	2.2	0.9	19.5
1952	1.1	1.2	1.9	2.5	5.2	6.2	1.5	3.4	3.6	2.9	1.1	-0.1	30.5
1953	0.5	1.0	1.5	2.9	4.7	4.5	4.6	6.6	5.3	3.3	0.1	0.0	35.0
1954	0.7	0.6	2.2	3.6	0.3	4.9	6.7	1.6	3.6	1.6	1.5	0.6	27.9
1955	0.5	1.0	2.1	4.6	3.4	-0.5	7.3	6.9	2.7	2.6	1.4	0.4	32.4
1956	0.6	1.1	1.9	2.8	3.9	4.5	5.0	3.7	4.7	3.7	1.3	0.5	33.7
1957	0.7	1.0	1.3	0.5	-0.6	-1.1	6.1	3.7	2.3	1.7	1.2	0.4	17.2
1958	0.7	0.1	1.0	0.6	2.3	4.4	1.0	1.9	3.3	3.3	1.0	0.6	20.2
1959	0.4	1.0	1.1	2.1	1.0	3.5	5.0	4.8	2.3	0.7	1.5	0.6	24.0

1960	0.1	0.7	2.0	2.7	0.9	0.1	4.9	3.6	3.9	2.0	1.3	0.4	22.6
1961	0.9	1.0	1.4	2.7	-1.1	0.6	5.1	2.9	1.2	2.4	0.7	0.1	17.9
1962	0.6	0.6	0.9	3.7	3.4	1.5	0.3	1.6	2.0	2.0	1.7	0.3	18.6
1963	0.7	1.4	1.3	4.5	4.6	6.3	6.1	3.1	-0.8	2.7	1.5	0.4	31.8
1964	0.8	0.8	1.7	3.2	5.6	1.2	6.9	3.0	3.0	3.3	1.2	0.6	31.3
1965	0.4	0.7	1.2	2.8	1.5	-0.5	2.0	2.8	-3.9	1.7	2.1	0.4	11.2
1966	0.9	0.8	2.9	2.7	7.5	2.8	5.8	3.7	2.7	2.8	1.5	0.4	34.5
1967	0.7	1.2	2.5	3.0	2.0	-2.9	1.6	4.5	3.5	2.0	1.6	0.4	20.1
1968	0.9	1.2	2.8	2.6	3.2	4.9	4.7	1.8	2.3	0.7	1.2	0.2	26.5
1969	0.4	0.6	2.4	3.3	0.1	3.8	-0.7	2.9	2.2	-1.0	1.5	0.4	15.9
1970	0.7	1.4	2.3	2.8	4.7	4.4	6.5	5.9	0.9	1.0	1.5	0.7	32.8
1971	0.7	0.2	2.0	2.9	0.7	5.1	3.4	4.5	1.4	1.5	0.2	0.5	23.1
1972	0.8	1.3	2.0	1.7	1.1	0.0	3.3	1.8	2.1	1.7	-0.4	0.1	15.5
1973	0.5	1.1	-0.7	2.5	3.4	6.7	-1.7	4.2	-3.0	0.2	0.2	0.2	13.6
1974	0.7	1.5	2.6	1.5	3.7	2.5	9.1	2.6	3.4	1.4	1.1	0.3	30.4
1975	0.7	0.7	2.0	2.1	0.8	1.1	4.3	2.7	3.0	3.4	0.7	0.6	22.1
1976	0.8	1.2	1.7	0.7	1.5	5.0	5.9	5.7	-0.2	1.4	1.4	0.7	25.8
1977	0.7	1.3	0.2	1.1	0.0	4.6	4.0	0.6	2.0	1.6	1.0	0.4	17.5
1978	0.5	0.7	1.2	3.4	3.9	6.2	7.1	4.5	4.5	3.0	1.1	0.5	36.6
1979	0.5	0.6	1.1	3.9	4.4	4.6	3.5	5.1	4.1	2.8	1.4	0.7	32.7
1980	0.5	0.6	1.2	3.4	3.7	4.7	6.8	6.0	3.9	2.7	1.3	0.6	35.4
1981	0.5	0.6	1.2	3.8	3.2	4.8	4.2	3.7	2.9	1.7	1.3	0.7	28.6
1982	0.5	0.7	1.2	3.9	3.8	3.9	5.1	3.8	2.9	2.2	1.4	0.8	30.2
1983	0.5	0.7	1.4	2.9	4.2	5.3	8.6	7.2	4.6	1.8	1.5	0.6	39.3
1984	0.6	0.8	1.4	2.9	4.2	5.8	7.2	5.7	4.7	1.4	1.4	0.7	36.8
1985	0.5	0.7	1.3	2.3	4.0	4.5	5.6	3.5	3.8	1.5	1.5	0.7	29.9
1986	0.6	0.7	1.3	2.8	4.4	5.8	6.7	4.0	2.7	1.3	1.4	0.7	32.4
1987	0.5	0.8	1.3	3.1	4.2	6.2	6.9	3.5	3.1	2.2	1.4	0.7	33.9
1988	0.5	0.7	1.3	3.5	4.9	6.6	4.6	4.8	3.5	2.2	1.4	0.7	34.7
1989	0.5	0.7	1.2	4.2	4.5	4.4	4.8	3.6	3.0	2.5	1.4	0.7	31.5
1990	0.5	0.7	1.2	3.0	3.5	5.6	6.4	4.0	5.0	3.4	1.4	0.6	35.3
1991	0.5	0.7	1.2	2.8	3.3	5.5	6.0	5.0	5.1	3.2	1.3	0.6	35.2
1992	0.6	0.7	1.2	1.8	3.2	2.2	4.1	3.5	4.2	2.9	1.9	1.0	27.3
1993	0.6	0.5	1.0	2.2	3.1	4.6	4.2	4.9	4.5	4.4	3.1	1.2	34.3
Avg	0.6	0.8	1.5	2.7	3.2	3.9	5.3	4.3	2.8	2.2	1.3	0.5	29.1

Attachment 5 Projected Water Supply Spread Sheet Calculations

Trigger Calculations	Units-1000 Acre-feet	Irrigation Trigger	119.0		Assume that during irrigation release season							
Based on Harlan County Lake		Total Irrigation Supply	130.0		HCL Inflow = Evaporation Loss							
Irrigation Supply		Bottom Irrigation	164.1									
		Evaporation Adjust	20.0									

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1993 Level AVE inflow	6.3	5	4.7	4.5	8.8	14.1	13.0	17.2	30.6	11.0	6.2	5.4	126.8
1993 Level AVE evap (1931-93)	2.2	1.3	0.5	0.6	0.8	1.5	2.7	3.2	3.9	5.3	4.3	2.8	29.1
Avg. Inflow Last 5 Years	10.8	13.0	12.3	12.9	16.6	22.4	19.4	18.1	14.8	16.5	11.0	4.7	172.6

Year 2001-2002
Oct - Jun
Trigger and
Irrigation Supply
Calculation

Calculation Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Previous EOM Content	236.5	235.9	238.6	242.9	248.1	255.1	263.8	269.6	276.2
Inflow to May 31	73.6	67.3	62.3	57.6	53.1	44.3	30.2	17.2	0.0
Last 5 Yrs Avg Inflow to May 31	125.6	114.8	101.7	89.5	76.6	59.9	37.5	18.1	0.0
Evap to May 31	12.8	10.6	9.3	8.8	8.2	7.4	5.9	3.2	0.0
Est. Cont May 31	297.3	292.6	291.6	291.7	293.0	292.0	288.1	283.6	276.2
Est. Elevation May 31	1944.44	1944.08	1944.00	1944.01	1944.11	1944.03	1943.72	1943.37	1942.77
Max. Irrigation Available	153.2	148.5	147.5	147.6	148.9	147.9	144.0	139.5	132.1
Irrigation Release Est.	120.1	117.4	116.8	116.8	118.1	117.1	116.8	116.8	116.8
Trigger - Yes/No	NO	YES	YES	YES	YES	YES	YES	YES	YES
130 kAF Irrigation Supply - Yes/No	NO	NO	NO	NO	NO	NO	NO	NO	NO

Attachment 5 Projected Water Supply Spread Sheet Calculations

Year 2002	
Jul - Sep	
Final Trigger and	
Total Irrigation Supply	
Calculation	

Calculation Month	Jul	Aug	Sep
Previous EOM Irrigation Release Est.	116.8	116.0	109.7
Previous Month Inflow	5.5	0.5	1.3
Previous Month Evap	6.3	6.8	6.6
Irrigation Release Estimate	116.0	109.7	104.4
Final Trigger - Yes/No	YES		
130 kAF Irrigation Supply - Yes/No	NO	NO	NO

Attachment 6: Computing Water Supplies and Consumptive Use Above Guide Rock

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Total Main Stem VWS	Hardy gage	Superior-Courtland Diversion Dam Gage	Courtland Canal Diversions	Superior Canal Diversions	Courtland Canal Returns	Superior Canal Returns	Total Bostwick Returns Below Guide Rock	NE CBCU Below Guide Rock	KS CBCU Below Guide Rock	Total CBCU Below Guide Rock	Gain Guide Rock to Hardy	VWS Guide Rock to Hardy	Main Stem Virgin Water Supply Above Guide Rock	Nebraska Main Stem Allocation Above Hardy	Kansas Main Stem Allocation Above Hardy	Nebraska Guide Rock to Hardy Allocation	Kansas Guide Rock to Hardy Allocation
							Col F + Col G			Col I + Col J	Col B - Col C + Col K - Col H	Col L + Col K	Col A - Col M	.489 x Col N	.511 x Col N	.489 x Col M	.511 x Col M

Attachment 7: Calculations of Return Flows from Bureau of Reclamation Canals

Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11
Canal	Canal Diversion	Spill to Waste-way	Field Deliveries	Canal Loss	Average Field Loss Factor	Field Loss	Total Loss from District	Percent Field and Canal Loss That Returns to the Stream	Total Return to Stream from Canal and Field Loss	Return as Percent of Canal Diversion
Name Canal	Headgate Diversion	Sum of measured spills to river	Sum of deliveries to the field	+Col 2 - Col 4	1 -Weighted Average Efficiency of Application System for the District*	Col 4 x Col 6	Col 5 + Col 7	Estimated Percent Loss*	Columns 8 x Col 9	Col 10/Col 1
Example	100	5	60	40	30%	18	58	82%	48	48%
Culbertson					30%					
Culbertson Extension					30%					
Meeker-Driftwood					30%					
Red Willow					30%					
Bartley					30%					
Cambridge					30%					
Naponne					35%					
Franklin					35%					
Franklin Pump					35%					
Almena					30%					
Superior					31%					
Courtland Canal Above Lovewell					23%					
Courtland Canal Below Lovewell					23%					

*The average field efficiencies for each district and percent loss that returns to the stream may be reviewed and, if necessary, changed by the RRCA to improve the accuracy of the estimates.

Attachment 8

STATUS OF AGREEMENT ON RRCA GROUND WATER MODEL
As of November 15, 2002

DOCUMENT CONTEXT

The purpose of this document is to summarize the status of the RRCA Ground Water Model. Agreement has been reached among the State of Colorado, State of Kansas, and State of Nebraska in consultation with the United States in the selection of model calibration targets and methods to estimate groundwater pumping and recharge. The RRCA Ground Water Model will be applied in a consistent manner with the RRCA Accounting and Reporting Procedures to ensure consumptive uses from surface water and ground water are properly accounted for. General agreement has also been reached on the process to calibrate the RRCA Ground Water Model. The States and United States agree that coordinated efforts will continue to refine data inputs and model calibration until completion, on or before July 1, 2003.

MODEL DESCRIPTION

The primary purpose of the RRCA Ground Water Model is to quantify within the Republican River Basin the amount, location, and timing of depletions to stream flow from ground water pumping and accretions to stream flows due to imported water supply from outside the basin. The major structural components of the model are:

The model uses MODFLOW 2000 with the following modules: BAS1, RCH, WEL, STR, EVT, DRN, CHD, and LPF.

The model domain extends beyond the Republican River watershed from the Platte River in the north and to the Ogallala aquifer outcrops on the southern, eastern, and western boundaries. The model domain coincides with that described in USGS Open File Report 02-175 except in the eastern portion of the Basin where it was extended eastward to the eastern edge of Kearney County, Nebraska and into Adams County, Nebraska to reflect increased water table elevations caused by imported water supplies from the Platte River. The model domain encompasses approximately 30,000 square miles.

Constant head boundary conditions for the model were assigned along the Platte River, the eastern boundary of Kearney, Clay, Nuckolls, and Adams Counties, Nebraska; and in Cheyenne County, Colorado where the Republican River exits the domain. All other boundaries are no-flow boundaries. See attachment RRCA Ground Water Model Domain.

The model represents the long term steady-state conditions up to 1940 and transient conditions from 1940 to 2000. Transient conditions are discretized into monthly stress periods. The model will be updated annually by the RRCA to reflect data from 1940 to the current accounting year.

The model is discretized into one-square mile grid cells.

The model is a single layer bounded on the bottom by the impermeable Pierre Shale.

As an interim measure, Saturated Thickness is based upon an average saturated thickness for the period 1940-2000; values were obtained by kriging across the model domain between known data points. The minimum saturated thickness in a model cell is 10 feet.

Stream Network was taken from USGS File Report 02-175.

The interim aquifer base was taken from USGS File Report 02-175, and is subject to adjustment to reflect elevation variances near streams.

Land surface elevations were obtained from the National Elevation Dataset (NED) one arc second Digital Elevation Model (DEM).

The aquifer is represented as confined in the present model structure, but will be changed to unconfined aquifer conditions prior to final model calibration.

Initial hydraulic conductivity and specific yield estimates were taken from USGS File Report 02-175 and are subject to adjustment in model calibration.

CALIBRATION TARGETS

WATER LEVEL

Ground water levels have been measured throughout the Basin since the early 1900's, but the number of sites increased dramatically post-World War II. The source of ground water level information used in the RRCA Ground Water Model is the Ground Water Site Inventory (GWSI) maintained by the United States Geological Survey (USGS) in cooperation with all three States. The tenure of static ground water level data ranges from a single-year measurement at a discrete location to a continuum of annual measurements that began in the early 1950's and continues to date at the same well. Ground water levels are typically measured once each year, usually in the non-irrigation season when effects from irrigation pumping are minimized. The RRCA Ground Water Model is calibrated to a ground water level data set that contains a total of

350,233 water level records at 10,835 different sites. The GWSI dataset was converted from latitude/longitude to a X-Y coordinate system. The entire dataset, including one-measurement water levels, is available for model calibration except for wells that were determined by the representative State to be clearly erroneous. Water level data from continuous recorders are not presently being applied. A procedure to weight water level targets during the calibration process may be utilized. Additional water level targets may be included upon agreement by all States.

BASEFLOW

Hydrograph separation is a technique that partitions the amount of surface water and ground water that is measured as total streamflow at a river gaging station. Determining the component of total streamflow that is contributed by ground water (also called baseflow) requires professional expertise and judgment. The hydrograph separation analysis used in this application is referred to as the Pilot Point method. This procedure was adopted for application in this ground water model since it combines the increased accuracy of graphical baseflow analysis with the computational efficiency afforded by electronic spreadsheets. Daily streamflow information for one, or multiple years, is easily tabulated in a Microsoft Excel© electronic spreadsheet. Daily hydrographs are subsequently plotted using the graphics package. The analyst performing the baseflow separation uses the tools available in the electronic graphics package to select pilot or turning points that signify the baseflow component in the total amount of streamflow measured at a river gaging station. A significant contribution of the graphics and computational package afforded by Microsoft Excel© is the

flexibility to easily change the assignment of each pilot or turning point upon comparative review with other nearby streamflow hydrographs or in collaboration with another analyst. The analyst may change one or multiple pilot points using the click-and-drag tool to another turning point and instantly recalculate the amount of baseflow for a defined period of time – from a month up to decades. Use of the electronic graphical/computational Pilot Point method also dampens the objectivity criticism of the traditional hand-graphics technique performed by an individual analyst.

For the RRCA Ground Water Model, fifty-seven (57) independent baseflow analyses were performed and adopted as calibration targets. A summary of the estimated monthly baseflows of each analysis is attached. Existing baseflow targets may be revised if found to be flawed, and additional baseflow targets may be adopted upon unanimous agreement by the RRCA Ground Water Modeling Committee. Adjustments for surface water diversions may also be considered and adopted by the RRCA Ground Water Modeling Committee, upon unanimous agreement.

As a supplement to the baseflow separation information developed for selected gaging stations and stream segments, Nebraska compiled miscellaneous streamflow measurements and synoptic baseflow survey data available from the USGS and State of Nebraska into a Microsoft Access© electronic database. The data were collected periodically since 1975, except for the data provided in the USGS Water Supply Paper 779, which were collected in the late 1920's and early 1930's. The synoptic baseflow data has not been included in model calibration to date,

but is available for review and consideration in the final model calibration.

PUMPING

The pumping for municipal and industrial purposes was obtained from the USGS. Each State developed its own estimate of gross irrigation pumping. The following general methodologies for estimating ground water pumping have been agreed to by the States. The States commit to mutual verification of pumping datasets, primarily by comparison to meter records (where available) and to a lesser extent by power records, and independent CIR calculations. The RRCA Ground Water Modeling Committee will continue to refine pumping estimates on commingled irrigated lands in Nebraska.

Colorado

The State of Colorado employed a seven-step procedure to estimate ground water pumping:

1. Total acres irrigated by surface and ground water is estimated for each county based upon data from the respective County Assessor's Office for the area contained in the RRCA Ground Water Model boundaries.

2. The acreage irrigated by surface water is identified from the County Assessor's Records

3. The acreage irrigated by ground water is calculated as the difference between the total acreage and the acreage irrigated by surface water.

4. The maximum farm efficiency for center-pivot sprinkler irrigation and flood irrigation is estimated for each year.

5. The percent of acreage irrigated by center-pivot sprinkler is estimated for each county for each year.

6. The crop water requirement is estimated for each county using the Hargreaves empirical formula calibrated to the Penman-Montieth method for reference crop evapotranspiration. The crop mix for each county is determined from County Assessor records. The effective precipitation is estimated using the procedure outlined in Irrigation Water Requirements, Technical Release No. 21, United States Department of Agriculture, April 1967 (Revised September 1970). The crop irrigation requirement is calculated as the total or potential crop water requirement minus the effective precipitation.

7. Pumping for each county is estimated as Irrigated Ground water Acreage multiplied by Crop Irrigation Requirement multiplied by Fraction of Crop Irrigation Requirement satisfied. This total is then divided by the maximum farm efficiency. The maximum farm efficiency is a weighted average based on the amount of sprinkler and flood irrigation.

Kansas

The State of Kansas uses the following procedure to estimate irrigation pumping for the period of 1940-1988:

1. Determine the potential evapotranspiration (PET) for the irrigated area and crops determined for the study area.

   a. Compute reference ET with the Penman-Montieth method for years when detailed climate data are available.

b. Develop calibration coefficients for the Hargreaves method to use prior to availability of detailed weather data.

c. Compute crop PET for study period.

d. Compute effective precipitation.

e. Determine crop distribution from county level crop statistics.

f. Compute crop demand for irrigation water (CIR) on a unit basis (inches per acre).

2. Compile a history of well development, including location, date and source. The main data source is the Kansas water right information system, including its water use database.

3. Compile irrigated area estimates, based on county crop statistics, previous studies and water use reports.

4. Compute the volume of crop demand for irrigation (CIR) on a countywide basis, and use this as an initial estimate of the net irrigation pumping.

5. Compare the estimated net irrigation pumping to the water use reports for 1989-1999. This comparison was used to calculate factors by county, averaged over the period.

6. Use the comparison of estimated to reported pumping to develop a factor to multiply by the crop demand to estimate the actual net pumping for 1940-1988.

The State of Kansas uses the following procedure to estimate irrigation pumping for the period of 1989-2000:

Kansas has received water use reports from water right holders since 1957. In 1989, the Kansas

Division of Water Resources (KDWR) was given additional enforcement authority and resources to require, obtain, and review water user reports of all water right holders. As a result, for the period 1989-2000, Kansas relied on the water use reports as its basis for estimating irrigation pumping. The water use report includes the total metered quantity or hours of operation, pumping rate, irrigated acreage, and crop type. Water users with meters are expected to report metered quantity; while those without meters report hours of pumping and diversion rate. Each water use report received by KDWR is reviewed for accuracy and completeness. All wells in the alluvium of the Republican River and its tributaries have been metered since 1998.

Net pumping was determined by multiplying the total pumping by an estimated irrigation efficiency (which includes evaporative spray loss and runoff loss). Recognizing that the type of irrigation has changed over time, Kansas assumed that all irrigation was flood until 1959, with an efficiency of 65%. Center pivots (85% efficiency) and other sprinklers (75% efficiency) were in use starting in 1960, and Low-Energy Precision Application systems (LEPA, 90% efficiency) use began in 1990. For 1960 to 1993, the proportion of center pivot and other sprinklers was interpolated from zero in 1959 to the value reported in the Kansas Water Rights Information System in 1993. The same procedure was applied to LEPA for the period 1990-1993. Flood irrigation was assumed to comprise the remainder each year to bring the sum to 100%.

Nebraska

Nebraska estimates pumping by a method that uses power records to estimate the hours of pumping for

irrigation wells in a given area by year. The reported pumping rate for each registered irrigation well is adjusted in accordance with an empirically derived relationship between registered rates and actual rates, as determined through field-testing. The estimated pumping rates are multiplied by scalars that are based primarily on comparisons to metered data. The scalars are required because some wells in Nebraska are supplemental to surface water, because of possible inconsistencies in the registration database, and/or where pumping capacity exceeds potential beneficial use. The hours and rates are combined with the well database to determine pumping amounts, assuming the same hours per well. Scalars are determined based on comparison of countywide pumping totals in the Upper Republican Natural Resources District. An additional scalar is proposed to account for commingled lands in the alluvium. Nebraska will continue its verification of its pumping estimates after 15 November, but does not propose to change its method.

IRRIGATED ACREAGE ESTIMATES

The States agree to the following methodologies for estimating irrigated acreage. The States commit to mutual verification and improving the accuracy of irrigated acreage datasets.

COLORADO

Estimates of the irrigated acreage for 1940 through 2000 in Colorado for the area covered by the RRCA Ground Water Model include lands in Kit Carson, Yuma, and Phillips Counties and parts of Sedgwick, Logan, Washington, Lincoln, and Cheyenne Counties. A small

area of Elbert County is located in the RRCA Ground Water Model area, but since there are no irrigation wells or ditches in that area, it was excluded.

The estimates are based on the County Assessors' records of irrigated acreage and well permit information contained in the Colorado Ground Water Commission's Northern High Plains Well Database with adjustments for irrigated fields set aside under federal farm programs. The results were compared to irrigated crop statistics compiled and published by the Colorado Department of Agriculture and the National Agricultural Statistics Service (NASS) and irrigated acreage records for farms participating in federally subsidized programs that were provided by local Farm Service Agency offices through the U.S. Department of Agriculture. Descriptions of these sources and procedures follow.

County Assessor Records

The county assessor is an elected official in county government and their duties are prescribed by Colorado Revised Statutes. Succinctly, the county assessor must discover, list, classify, and value all taxable real and personal property within their respective county. Procedures for classifying and valuing property are set forth in the "Personal Property Valuation Manual", the "Land Valuation Manual", and other references prepared by the Colorado Division of Taxation. The assessor's appraised property values form the basis for taxing districts to set mill levies and taxes. The county treasurer is responsible for collecting all property taxes.

For agricultural land, the assessor must determine the value of the land based on its production capability by

considering soils, irrigation sources and methods, crop yields, crop values and farm sales. The assessor relies on aerial photographs, county clerk records, the county soil survey, agricultural statistics from NASS, climatological records, interviews with local farmers, and other locally available information. Since 1989, all property is appraised every other year based on sales of equivalent property during the preceding two years. Provisions are allowed to conduct interim appraisals if necessary to reflect a change in property values assessment such as conversion from irrigated cropland to dry land pasture.

The county assessors must publish an "Abstract of Assessment" by August 25 of each year that summarizes the amount and value of various categories of property as of the previous January 1. The abstracts also document the valuation, mill levy, and revenue for each taxing district in the county. Categories of property include irrigated farmland, meadow hay land, dry farm land, grazing land, and other agricultural land. Since 1993, the abstracts tabulate acreage by sprinkler and flood irrigation. The Colorado Department of Local Affairs summarizes the abstracts and submits an annual report to the Colorado General Assembly.

Irrigated land that is taken out of production due to farm programs, such as the Payment in Kind (PIK) and Conservation Reserve Program (CRP), remain classified as irrigated by the county assessor pursuant to requirements in federal authorizing legislation for these programs. They remain classified as irrigated to assure payment to the farm owner by the federal government is commensurate with irrigated land production capability and to maintain the assignment of tax burden. The Farm Service Agency (FSA) of the US Department of Agriculture (USDA)

administers the federal crop programs. Each year, program participants must report crop acreage to the local FSA office that compiles records of irrigated and non-irrigated croplands. Federal farm program acreage records for 1990 through 2000 were available and summarized for each county as CRP fields and fallow fields. Those annual values were deducted from the assessors' irrigated acreage. The PIK Program reduced irrigated acreage significantly in the 1980s. Since the USDA does not retain records for more than 10 years, Colorado estimated the PIK acreage using NASS records as described later in this document.

Colorado Ground Water Commission's Northern High Plains Well Database

The Northern High Plains Well Database covers the entirety of the RRCA Ground Water Model area in Colorado. The information contained in the well database for the model area includes 3,967 ground water well records. Each record includes the well location, use of the water, place of use, pumping rate, irrigated acreage, owner, and priority date. The records for each county were sorted by use, priority date, and location. For each county and priority year, the number of irrigation wells is counted and the acreage shown on the well permits is quantified.

The irrigated acreage identified in the well permits exceeds the actual irrigated acreage identified through County Assessor data. Review of well permit acreage information indicates most cite a square quarter-section of land, or 160 acres. Center-pivot sprinkler systems are the prevalent water application method in the model area and a typical circular quarter-section system irrigates only 130 acres. Comparison of permitted irrigated acreage with

NASS data also indicates the well permit information exceeds the irrigated crop acreage reported by NASS.

Estimate of Surface Water Irrigated Acreage

Surface water irrigation in the Basin in Colorado occurs only in Yuma and Kit Carson Counties. The surface water acreage was obtained from the respective County Assessor's records that documented a total of 2,902 (Yuma) and 1,861 (Kit Carson) acres in 1940. These quantities were carried forth to date and do not reflect the small decrease in surface water irrigation that has occurred since 1940.

Estimate of Irrigated Acreage by County Over Time

The assessors' records of irrigated acreage for Kit Carson and Yuma Counties include land irrigated from surface water sources that precede 1940. Irrigation of additional acreage after 1940 can be attributed exclusively to ground water development. Review of historic county assessor records confirms there has been little change in irrigated acreage since 1979 and the Assessors' records for recent years provide the most accurate quantification of irrigated acreage in each county.

To estimate the irrigated acreage over time, the ratio of the assessors reported acreage in 2000 to the cumulative acreage under all well permits for irrigation is calculated. For Phillips, Sedgwick, Logan, Washington, Lincoln, and Cheyenne Counties, that ratio is multiplied by the annual cumulative well permit acreage to determine the acreage in a specific year. For Kit Carson and Yuma Counties, the ratio was multiplied by the yearly permitted acreage and the resultant was added to the previous year's

acreage to account for surface-water irrigated land developed before 1940. For 1990 through 2000, the fallow irrigated fields and fields idled due to farm programs (USDA records) were deducted from the calculated acreage to determine the net irrigated acreage for those years. From 1982 through 1988, significant acreage was taken out of production through the USDA's Payment in Kind (PIK) program. The USDA represents that it does not have records of the county acreage idled by this program during the 1980's because it retains records on individual farms for only 10 years. The NASS records show significant reductions in irrigated acreage, up to 110,000 acres in 1983, in Kit Carson, Yuma, and Phillips Counties. To reflect this program, Colorado combined the NASS acreage for the three counties[4] and calculated the annual reduction percentage from the acreage in 1981.

Year	**Total Irrigated** Acres	**Reduction as Percent of 1981**
1981	507,774	0.0
1982	480,443	5.4
1983	392,562	22.7
1984	426,248	16.1
1985	431,243	15.1
1986	416,416	18.0
1987	465,633	8.3
1988	468,627	7.7

[4] The NASS records for the other five counties were not used for these calculations because the irrigated acreage in these counties overlaps into other river basins.

The annual reduction percentages were multiplied by the irrigated acreage in each county and the resultant was subtracted to determine net irrigated acreage.

Colorado Irrigated Acres Summary

The total irrigated acreage in the Basin in Colorado in 2000 was 572,483 acres. Surface water irrigated lands are located only in Kit Carson and Yuma Counties and account for 4,763 acres. The total for lands irrigated by ground water is the difference, or 567,720 acres in 2000. No lands were identified that were irrigated by a combination of surface water and ground water pumping.

KANSAS

For the period 1989-1999, irrigated acres from the Water Use Reports were used. Data for 1999 was used for 2000, as the 2000 data have not been compiled yet. The National Agricultural Statistics Service (NASS) Agricultural Statistics provide countywide data that is most complete in Kansas after 1972; however, some irrigated crops are not tracked individually. The Census of Agriculture data from 1987, 1992 and 1997 were used to distribute some acreage to irrigated crops from the total acreage given in the Agricultural Statistics for the years 1972 to 1988. The revised acreages were then multiplied by an estimate of the percentage of each county's irrigated acreage in the model area, determined from the Water Use Report data, and used as the irrigated acres for 1972-1988. For the pre-1972 acreage, the annual well count was multiplied by a ratio of acres per well determined from either the Water Use Reports or the adjusted Agricultural Statistics for 1972, whichever gave a better fit to the

subsequent year's estimates. Irrigated acreage for each section was calculated by multiplying the annual well count by the irrigated acres per well, with a maximum of 520 irrigated acres per section. All remaining acreage above the 520 limit was assigned pro rata to other sections with less than 416 irrigated acres (80% of 520 acres).

Kansas Irrigated Acres Summary

The total irrigated acreage for Kansas's counties in 2000 is 449,891 acres.

NEBRASKA

National Agricultural Statistics Service (NASS) is an agency of the US Department of Agriculture (USDA). In cooperation with the Nebraska Department of Agriculture (NDA), NASS prepares an estimate of crop acreage by county. Annually they produce "Nebraska Agricultural Statistics" which is a compilation of information about farms, crops, and livestock. Every five years, NASS produces the Census of Agriculture, which is a detailed counting of farms, crops, and livestock. For the intervening four years, the estimates are prepared using a much smaller sample than the census. Periodically, NASS presents revisions to the annual estimates based on the results of the most recent census.

Reports are prepared annually for Nebraska and the data are collected and summarized statewide and by county. Farmers are surveyed each fall following harvest. Those surveys are supplemented with surveys of grain elevators and mills for volumes of grain received, meat packing plants, and other agribusiness. Crops are added and deleted from the annual report as cropping patterns

change. For example, broom corn was deleted from the surveys in the 1960s and sunflowers were added in 1990. Generally, the USDA is most interested in farm program crops such as corn and wheat and the NDA is interested in other crops such as alfalfa, grass hay, fruits, and table vegetables.

The annual reports break out irrigated and non-irrigated acreage for some crops. For other crops, such as alfalfa and corn for silage, NASS reports total acreage harvested every year but reports irrigated acreage periodically. In these cases, estimates of the irrigated acreage for the crop is based on the ratio of reported irrigated acreage and total harvested acreage in other years.

Nebraska Irrigated Acres Summary

The total irrigated acreage for Nebraska counties in the ground water model domain in 2000 is 1,692,521 acres.

CROP IRRIGATION REQUIREMENTS (CIR)

Colorado

The potential irrigation requirements for each crop for each county and year was estimated using the Hargreaves equation calibrated to the Penman-Monteith equation. The crop mix was obtained by County Assessor data. Effective rainfall was estimated using the procedure outlined in Technical Report 21. The gain in soil moisture from winter and spring precipitation was an average of 2.0 inches (source: Republican River Basin Water Management Study, Steven J. Vandas, United States Bureau of Reclamation, March 1983). The net crop irrigation requirement is calculated as the potential consumptive use minus

effective precipitation minus the gain in soil moisture from winter and spring precipitation.

Kansas

Using the Penman-Monteith calculations, the composite crop-weighted unit CIR was obtained for each year. Requisite data to calculate the CIR for 1945-1949 was not available, so the average for 1950-1959 was substituted for these years. The unit CIR for 1945-2000, was multiplied by the irrigated acreage described above to obtain volume of irrigation demand for each county. To account for winter soil moisture, a preliminary soil moisture factor was applied to each county in April and, if necessary, May, and was used to offset the CIR at the beginning of the irrigation season. The remaining CIR was then used as an initial estimate of net pumping.

RECHARGE

Estimated recharge is the result of two sources of water: recharge from precipitation and recharge from human activities such as irrigation. Recharge from irrigation is further segmented into two principal components based upon the source of water, surface or groundwater.

PRECIPITATION RECHARGE

Precipitation recharge is a significant variable in the overall water budget because its effect encompasses the entire model domain of over 19 million acres. Average precipitation between 1940 and 2000 varies from approximately 16 inches per year in the western part of the study area to approximately 27 inches per year in the eastern

part of the Basin. Recharge from precipitation generally increases from west to east across the domain. Recharge from precipitation is also influenced by soil type. More recharge is generated on sandy soils than clay soils for the same amount of precipitation. Therefore, STATSGO soil maps were used to locate sandy soils in the domain. These areas are commonly referred to as the *sand hills* of Colorado and western Nebraska. Different precipitation to recharge mathematical relationships are assigned to sandy and non-sandy soils.

More complex relationships may be considered, i.e. to account for additional variations in soil types, for non-linear precipitation effects, and for topography. A change in precipitation recharge over time, due to construction of farm terraces and ponds, may be considered.

GROUNDWATER IRRIGATION RECHARGE

The following methodologies are generally agreed upon. The RRCA Ground Water Modeling Committee will develop a common set of procedures and recharge values by system type.

Colorado – Recharge from ground water pumping in Colorado is calculated for each year and for each county. Groundwater recharge from sprinkler irrigation is calculated by multiplying the product of the gross pumping for sprinkler irrigation by the percentage that returns as deep percolation. In a similar manner, the amount of groundwater recharge from flood irrigation is calculated by multiplying the product of the gross pumping for flood irrigation by the percentage that returns to the aquifer as deep percolation. The total amount of recharge from groundwater per

county and year is the sum of the returns to deep percolation from sprinkler and flood irrigation.

Kansas – Return flow from groundwater irrigation was calculated by subtracting the net pumping from the gross pumping. Once the county monthly pumping and return flow values were calculated, they were distributed to the sections within the county using the annual well count and irrigated acreage. A section's percentage of the county's total irrigated acreage was calculated and multiplied by the county pumping and return flows to obtain values for the section

Nebraska – Based on professional judgment, Nebraska has assumed recharge rates that are generally inverse to assumed farm efficiency. From 1940-1970, recharge is assumed to be 30% of pumping, a value representative of gravity irrigation. Thereafter efficiency is assumed to increase, and recharge to decrease, with implementation of sprinkler irrigation and improvements to gravity irrigation systems. The recharge rate is assumed to be 20% in 2000, and the annual values 1970-2000 are determined by interpolation.

SURFACE WATER IRRIGATION RECHARGE

Estimates of surface water recharge that were used in the RRCA Ground Water Model are calculated as follows:

Forty (40) percent of diversions for small non-federal ditches and canals.

Twenty-five (25) percent for small surface water pumping plants.

As provided by the United States Bureau of Reclamation for federal irrigation projects (reference Section IV.A.2.c in the RRCA Accounting Procedures).

PHREATOPHYTES

The potential evapotranspiration rate for the various classifications of phreatophyte vegetation (forest, woody, and marsh) was collapsed into a single ET rate obtained from CROPSIM (Martin, 1984) results for the Akron, McCook, and Red Cloud climate stations on a monthly time step. The maximum phreatophyte ET rate elevation is set at two (2) feet below ground surface and the extinction depth is at twelve (12) feet below the ground surface. For the initial ground water model runs, the change or encroachment of phreatophytes over time was adjusted in accordance with the curvilinear time-relationship developed from aerial photographic data provided by Michaela Johnson in a published Master's Thesis (Johnson, 2001). The method to quantify the aerial coverage of phreatophytes and the distribution over time is subject to review and adoption by the RRCA Ground Water Modeling Committee, upon unanimous agreement.

Colorado – The Colorado Gap Analysis Project (CO-GAP) was initiated in 1991 as a cooperative effort among federal, state, and private natural resource groups in Colorado. The major objectives of the project are to: map actual land cover as closely as possible and make all GAP Project information available to users in a readily accessible format to institutions, agencies, and private land owners. Landsat imagery was acquired or interpreted to establish a baseline map of vegetation and land cover. Attributes

were assigned to each polygon describing primary, secondary, and other land cover, crown closure for forested primary types, and the types of wetlands and/or disturbance found in the polygon, if any. Polygon attributes were assigned using image interpretation, existing maps, field reconnaissance, digital reference layers from Federal land management agencies, and literature sources.

Kansas – Landsat TM7 imagery from 2000 was obtained covering most of the RRCA Ground Water area, except for the far south-central and far-eastern portions. Tributaries with visible phreatophyte cover were mapped as a subset of the hydrographic drainage network available as a digital line graph from the USGS. Tributaries were then divided according to the relative width of the riparian cover. Within each of these discrete reaches, cross sections from the outside boundaries of the riparian vegetation were then mapped and the average cross section within the reach was calculated. One-half of this average cross section was used as the distance from the hydrographic channel mapped by the USGS to map a polygon to enclose the riparian phreatophyte corridor along the reach. These polygons were merged with the Nebraska polygons denoting woody phreatophytes because some areas mapped as woody phreatophytes lay well outside of the riparian corridor. For evaluation of the change in phreatophyte ET over time, Kansas is using two techniques: (1) the Normalized Difference Vegetation Index (NDVI) satellite index to evaluate the change in relative water use between 1974 and 2000 on selected major tributaries, and (2) a time series of air photos for 16 main stem and tributary locations spread throughout the basin on which the vegetation will be evaluated using intercept methods

Nebraska – the Nebraska Department of Natural Resources (NDNR), in association with the Nebraska Conservation and Survey Division maintain a collection of digitally rectified aerial photography for landscape analysis. This data has a resolution of 20-ft. and was projected in UTM, Nad83. The NDNR digitized the 1993 Digital Orthophoto Quarter Quadrangle to identify phreatophyte forests from visual examination of the black and white aerial photography at a scale of 1:15,000. Polygons were fit over the photographs in ESRI's Arc View GIS then reprojected into the RRCA Groundwater Model projection (UTM, Nad27). Approximately 100 sites were visually inspected during field reconnaissance to verify the distribution of woody phreatophytes obtained from the aerial photography. The polygon output provided by Kansas was combined with the aerial photography analysis by Nebraska to include wetland areas in the minor tributaries, with corrections to exclude polygons of irrigated croplands. To accommodate the synoptic biases due to scale, polygon correction was performed at a scale of 1:50,000. Polygons to represent the phreatophyte areas downstream of Red Cloud, Nebraska and the extended groundwater mound area in Kearney and Adams County, Nebraska were derived from aerial photography at a scale of 1:50,000.

CALIBRATION PARAMETERS

Calibration parameters are physical, climatic, and/or aquifer properties that can be adjusted to so that the mathematical representation of a ground water model better represents actual conditions. Selection of final values for calibration parameters requires consideration of the match between model outputs and calibration targets, and whether such values are reasonable considering

geologic, climatic, and other conditions in the Basin. Calibration parameters may vary in a spatial context to reflect different physical and/or geographic conditions. The two principal calibration parameters used in application to the RRCA Groundwater Model are hydraulic conductivity and precipitation recharge.

Hydraulic Conductivity: hydraulic conductivity may be defined as the measure of the ease in which water can be transmitted through a porous material, i.e. flow through an aquifer. The hydraulic conductivity values applied in the model are based upon professional expertise and vary across the model domain. The values were distributed spatially using a parameter estimation (PEST) algorithm. Hydraulic conductivity will continue to be refined and statistically distributed throughout the model domain during the calibration process.

Precipitation Recharge: the amount of precipitation that percolates into the ground water aquifer is expressed as a percentage of effective precipitation and is segmented into monthly distributions. Two general soil classifications were identified with the following preliminary precipitation recharge rates: 4% of annual precipitation for sandy soils, and 1% for non-sandy soils, distributed throughout the year. The precipitation recharge rates may change upon final model calibration. An empirical relationship to reflect the non-linear precipitation/recharge rate was developed to satisfy the physical reality that the recharge rate increases in a curvilinear function with increasing precipitation. In general, the relationship adopted for the calibrated model will be expected to corroborate the basin water budget and the space and time distribution of both runoff and recharge.

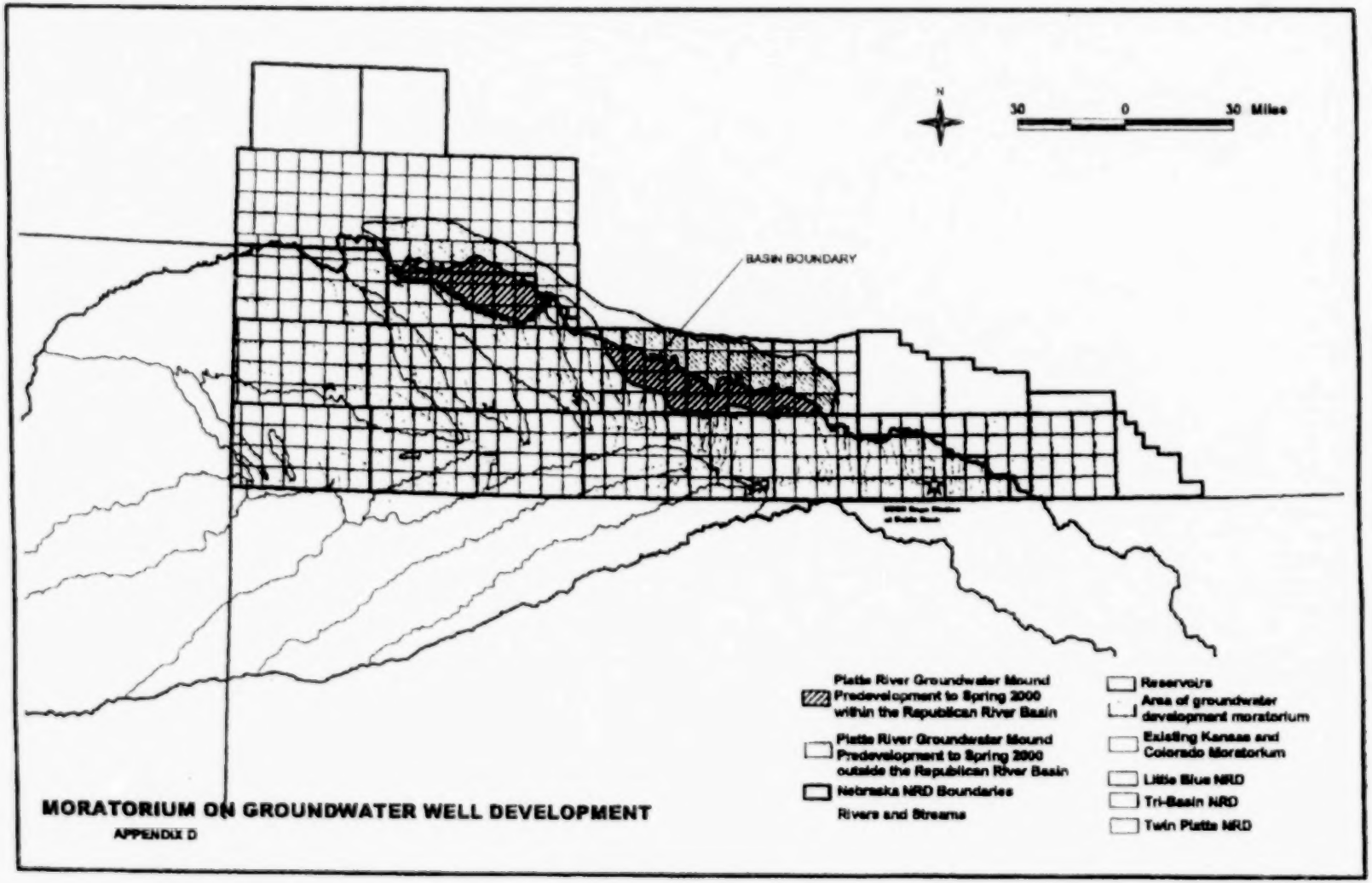
Lesser calibration parameters that are used to further refine the ground water model include:

Canal seepage: will be calculated using a water budget approach of the basic form: *Seepage is equal to Diversions minus Net Evaporation minus Other Net Outflows minus Change in Storage*, when adequate data is available. If only diversions are known, canal seepage will be estimated using the unit loss rates calculated by nearby canals that have sufficient data to employ the water budget approach.

Phreatophyte potential evapotranspiration rate is indexed to the Red Cloud, Nebraska and Akron, Colorado climate stations with annual rates of 18-36 inches and 30-48 inches respectively. The annual potential evapotranspiration rates were kriged across the model domain.

Specific yield estimates will continue to be refined during model calibration.

Residuals: it is recognized that the calibrated model may not perfectly match all the calibration targets, and that residuals (differences between model predictions and target values) may be positive in some sub-basins and negative in others. If necessary, the RRCA Ground Water Modeling Committee will codify a procedure that fairly distributes the residuals among contributory sub-basins and among the three States.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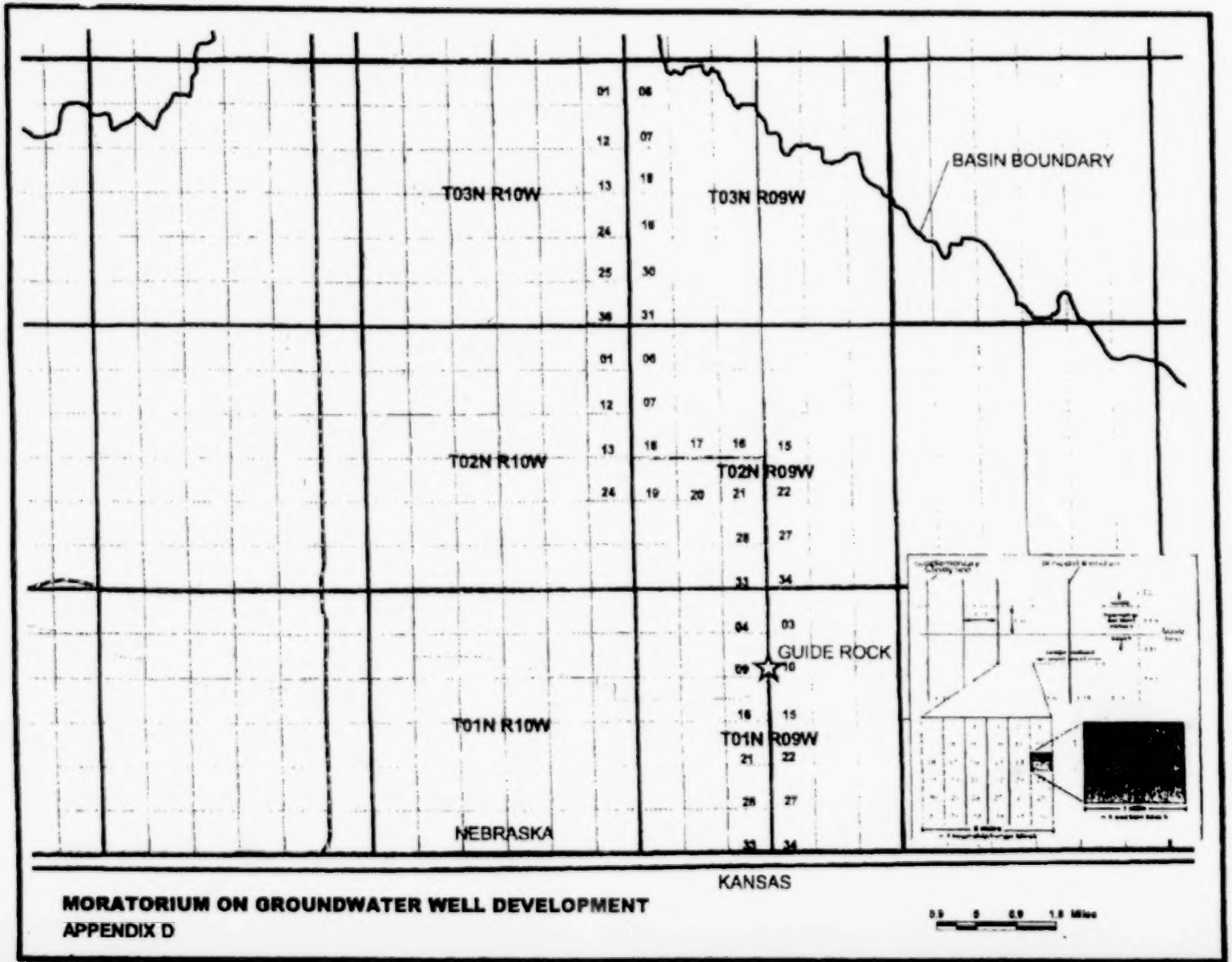
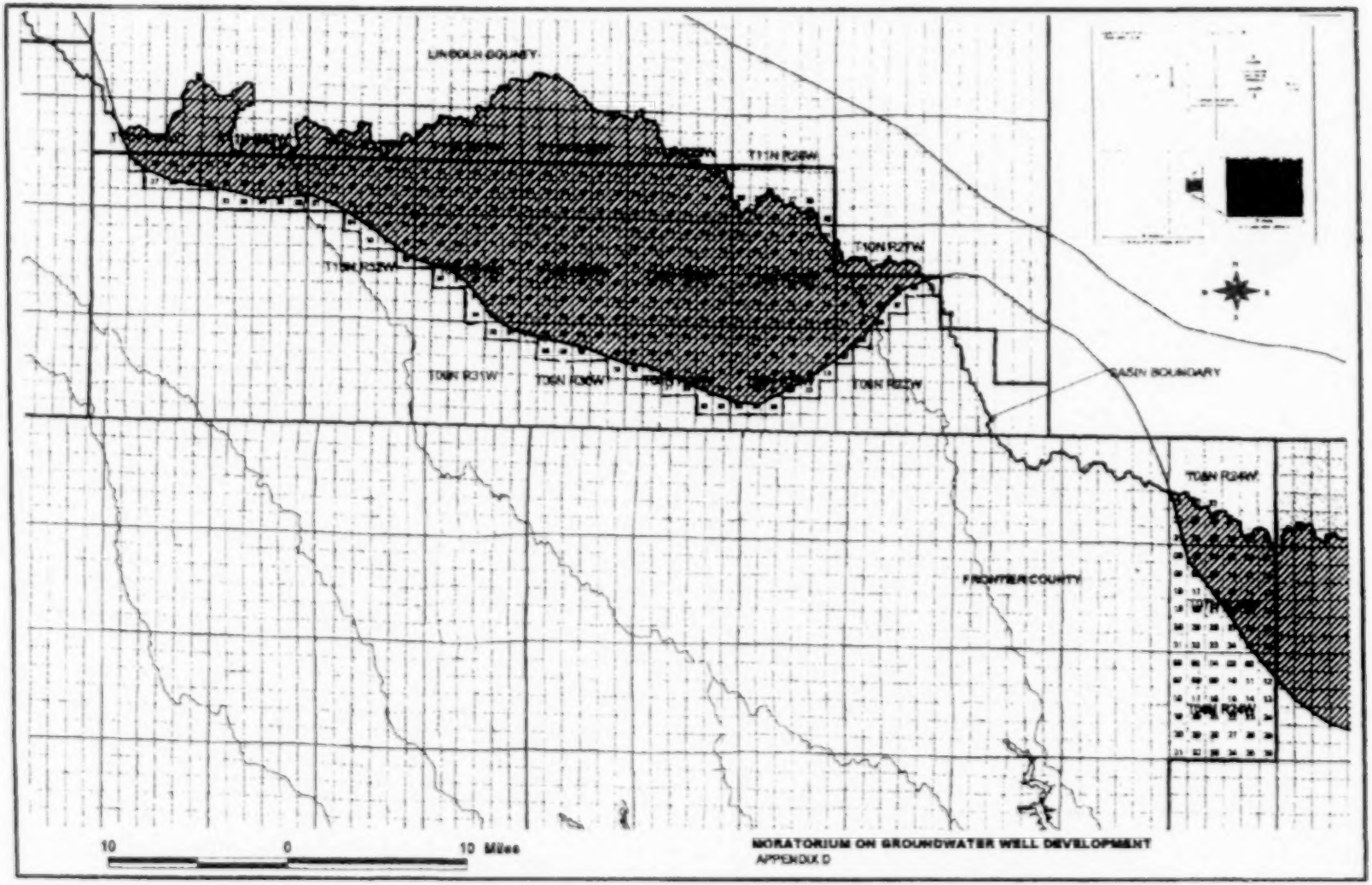
30 0 30 Miles
BASIN BOUNDARY
Platte River Groundwater Mound Predevelopment to Spring 2000 within the Republican River Basin
Platte River Groundwater Mound Predevelopment to Spring 2000 outside the Republican River Basin
Nebraska NRD Boundaries
Rivers and Streams
Reservoirs
Area of groundwater development moratorium
Existing Kansas and Colorado Moratorium
Little Blue NRD
Tri-Basin NRD
Twin Platte NRD
MORATORIUM ON GROUNDWATER WELL DEVELOPMENT
APPENDIX D



MORATORIUM ON GROUNDWATER WELL DEVELOPMENT
APPENDIX D


LINCOLN COUNTY
T11N R28W
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BASIN BOUNDARY
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FRONTIER COUNTY
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MORATORIUM ON GROUNDWATER WELL DEVELOPMENT
APPENDIX D

APPENDIX K

Description of the Consensus Plan for Harlan County Lake

The Consensus Plan for operating Harlan County Lake was conceived after extended discussions and negotiations between Reclamation and the Corps. The agreement shaped at these meetings provides for sharing the decreasing water supply into Harlan County Lake. The agreement provides a consistent procedure for: updating the reservoir elevation/storage relationship, sharing the reduced inflow and summer evaporation, and providing a January forecast of irrigation water available for the following summer.

During the interagency discussions the two agencies found agreement in the following areas:

- The operating plan would be based on current sediment accumulation in the irrigation pool and other zones of the project.
- Evaporation from the lake affects all the various lake uses in proportion to the amount of water in storage for each use.
- During drought conditions, some water for irrigation could be withdrawn from the sediment pool.
- Water shortage would be shared between the different beneficial uses of the project, including fish, wildlife, recreation and irrigation.

To incorporate these areas of agreement into an operation plan for Harlan County Lake, a mutually acceptable procedure addressing each of these items was negotiated and accepted by both agencies.

Sediment Accumulation.

The most recent sedimentation survey for Harlan County project was conducted in 1988, 37 years after the lake began operation. Surveys were also performed in 1962 and 1972; however, conclusions reached after the 1988 survey indicate that the previous calculations are unreliable. The 1988 survey indicates that, since closure of the dam in 1951, the accumulated sediment is distributed in each of the designated pools as follows:

Flood Pool	2,387 acre-feet
Irrigation Pool	4,853 acre-feet
Sedimentation Pool	33,527 acre-feet

To insure that the irrigation pool retained 150,000 acre-feet of storage, the bottom of the irrigation pool was lowered to 1,932.4 feet, msl, after the 1988 survey.

To estimate sediment accumulation in the lake since 1988, we assumed similar conditions have occurred at the project during the past 11 years. Assuming a consistent rate of deposition since 1988, the irrigation pool has trapped an additional 1,430 acre-feet.

A similar calculation of the flood control pool indicates that the flood control pool has captured an additional 704 acre-feet for a total of 3,090 acre-feet since construction.

The lake elevations separating the different pools must be adjusted to maintain a 150,000-acre-foot irrigation pool and a 500,000-acre-foot flood control pool. Adjusting these elevations results in the following new elevations for the respective pools (using the 1988 capacity tables).

Top of Irrigation Pool	1,945.70 feet, msl
Top of Sediment Pool	1,931.75 feet, msl

Due to the variability of sediment deposition, we have determined that the elevation capacity relationship should be updated to reflect current conditions. We will complete a new sedimentation survey of Harlan County Lake this summer, and new area capacity tables should be available by early next year. The new tables may alter the pool elevations achieved in the Consensus Plan for Harlan County Lake.

Summer Evaporation.

Evaporation from a lake is affected by many factors including vapor pressure, wind, solar radiation, and salinity of the water. Total water loss from the lake through evaporation is also affected by the size of the lake. When the lake is lower, the surface area is smaller and less water loss occurs. Evaporation at Harlan County Lake has been estimated since the lake's construction using a Weather Service Class A pan which is 4 feet in diameter and 10 inches deep. We and Reclamation have jointly reviewed this information and assumed future conditions to determine an equitable method of distributing the evaporation loss from the project between irrigation and the other purposes.

During those years when the irrigation purpose expected a summer water yield of 119,000 acre-feet or more, it was determined that an adequate water supply existed and no sharing of evaporation was necessary. Therefore, evaporation evaluation focused on the lower pool elevations when water was scarce. Times of water shortage would also generally be times of higher evaporation rates from the lake.

Reclamation and we agreed that evaporation from the lake during the summer (June through September) would be distributed between the irrigation and sediment pools based on their relative percentage of the total storage at the time of evaporation. If the sediment pool held 75 percent of the total storage, it would be charged 75 percent of the evaporation. If the sediment pool held 50 percent of the total storage, it would be charged 50 percent of the evaporation. At the bottom of the irrigation pool (1,931.75 feet, msl) all of the evaporation would be charged to the sediment pool.

Due to downstream water rights for summer inflow, neither the irrigation nor the sediment pool is credited with summer inflow to the lake. The summer inflows would be assumed passed through the lake to satisfy the water right holders. Therefore, Reclamation and we did not distribute the summer inflow between the project purposes.

As a result of numerous lake operation model computer runs by Reclamation, it became apparent that total evaporation from the project during the summer averaged about 25,000 acre-feet during times of lower lake elevations. These same models showed that about 20 percent of the evaporation should be charged to the irrigation pool, based on percentage in storage during the summer months. About 20 percent of the total lake storage is in the irrigation pool when the lake is at elevation 1,935.0 feet, msl. As a result of the joint study, Reclamation and we agreed that the irrigation pool would be credited with 20,000 acre-feet of water during times of drought to share the summer evaporation loss.

Reclamation and we further agreed that the sediment pool would be assumed full each year. In essence, if the actual pool elevation were below 1,931.75 feet, msl, in January, the irrigation pool would contain a negative storage for the purpose of calculating available water for irrigation, regardless of the prior year's summer evaporation from sediment storage.

Irrigation withdrawal from sediment storage.

During drought conditions, occasional withdrawal of water from the sediment pool for irrigation is necessary. Such action is contemplated in the Field Working Agreement and the Harlan County Lake Regulation Manual: "Until such time as sediment fully occupies the allocated reserve capacity, it will be used for irrigation and various conservation purposes, including public health, recreation, and fish and wildlife preservation."

To implement this concept into an operation plan for Harlan County Lake, Reclamation and we agreed to estimate the net spring inflow to Harlan County Lake. The estimated inflow would be used by the Reclamation to provide a firm projection of water available for irrigation during the next season.

Since the construction of Harlan County Lake, inflows to the lake have been depleted by upstream irrigation wells and farming practices. Reclamation has recently completed an in-depth study of these depleted flows as a part of their contract renewal process. The study concluded that if the current conditions had existed in the basin since 1931, the average spring inflow to the project would have been 57,600 acre-feet of water. The study further concluded that the evaporation would have been

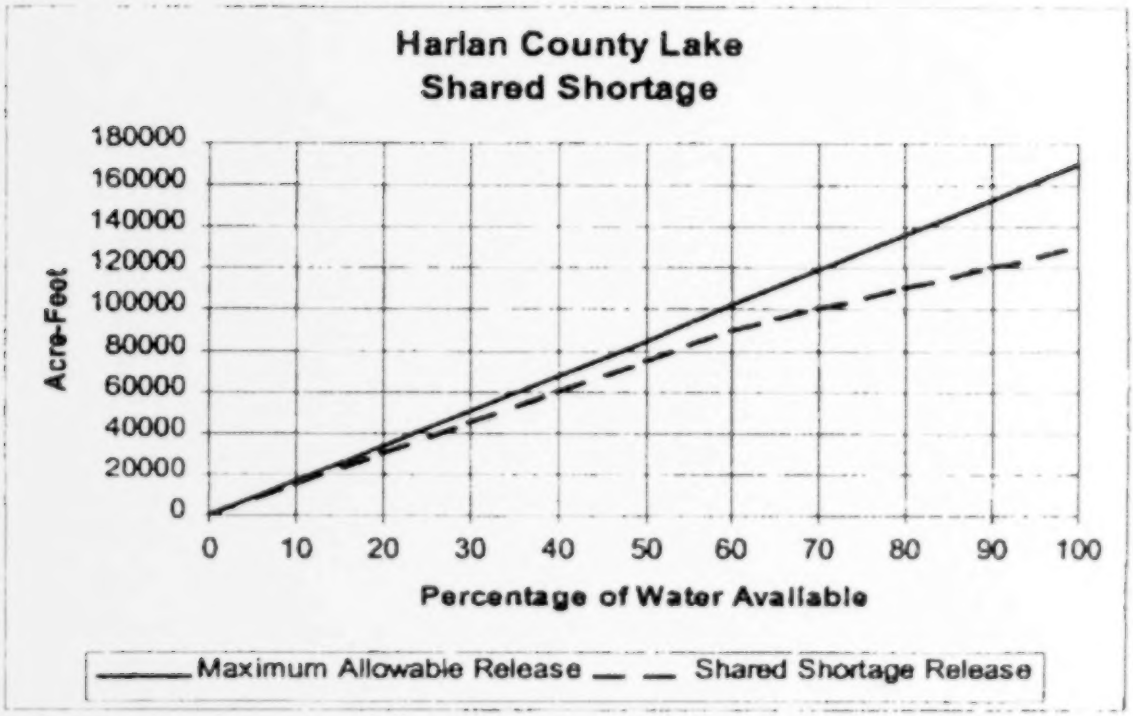
8,800 acre-feet of water during the same period. Reclamation and we agreed to use these values to calculate the net inflow to the project under the current conditions.

In addition, both agencies also recognized that the inflow to the project could continue to decrease with further upstream well development and water conservation farming. Due to these concerns, Reclamation and we determined that the previous 5-year inflow values would be averaged each year and compared to 57,600 acre-feet. The inflow estimate for Harlan County Lake would be the smaller of these two values.

The estimated inflow amount would be used in January of each year to forecast the amount of water stored in the lake at the beginning of the irrigation season. Based on this forecast, the irrigation districts would be provided a firm estimate of the amount of water available for the next season. The actual storage in the lake on May 31 would be reviewed each year. When the actual water in storage is less than the January forecast, Reclamation may draw water from sediment storage to make up the difference.

Water Shortage Sharing.

A final component of the agreement involves a procedure for sharing the water available during times of shortage. Under the shared shortage procedure, the irrigation purpose of the project would remove less water then otherwise allowed and alleviate some of the adverse effects to the other purposes. The procedure would also extend the water supply during times of drought by "banking" some water for the next irrigation season. The following graph illustrates the shared shortage releases.



Calculation of Irrigation Water Available

Each January, the Reclamation would provide the Bostwick irrigation districts a firm estimate of the quantity of water available for the following season. The firm estimate of water available for irrigation would be calculated by using the following equation and shared shortage adjustment:

> Storage + Summer Sediment Pool Evaporation + Inflow – Spring Evaporation = Maximum Irrigation Water Available

The variables in the equation are defined as:

- Maximum Irrigation Water Available. Maximum irrigation supply from Harlan County Lake for that irrigation season.

- Storage. Actual storage in the irrigation pool at the end of December. The sediment pool is assumed full. If the pool elevation is below the top of the sediment pool, a negative irrigation storage value would be used.
- Inflow. The inflow would be the smaller of the past 5-year average inflow to the project from January through May, or 57,600 acre-feet.
- Spring Evaporation. Evaporation from the project would be 8,800 acre-feet which is the average January through May evaporation.
- Summer Sediment Pool Evaporation. Summer evaporation from the sediment pool during June through September would be 20,000 acre-feet. This is an estimate based on lower pool elevations, which characterize the times when it would be critical to the computations.

Shared Shortage Adjustment

To ensure that an equitable distribution of the available water occurs during short-term drought conditions, and provide for a "banking" procedure to increase the water stored for subsequent years, a shared shortage plan would be implemented. The maximum water available for irrigation according to the above equation would be reduced according to the following table. Linear interpolation of values will occur between table values.

Shared Shortage Adjustment Table

Irrigation Water Available (Acre-Feet)	Irrigation Water Released (Acre-Feet)
0	0
17,000	15,000
34,000	30,000

51,000	45,000
68,000	60,000
85,000	75,000
102,000	90,000
119,000	100,000
136,000	110,000
153,000	120,000
170,000	130,000

Annual Shutoff Elevation for Harlan County Lake

The annual shutoff elevation for Harlan County Lake would be estimated each January and finally established each June.

The annual shutoff elevation for irrigation releases will be estimated by Reclamation each January in the following manner:

1. Estimate the May 31 Irrigation Water Storage (IWS) (Maximum 150,000 acre-feet) by taking the December 31 irrigation pool storage plus the January-May inflow estimate (57,600 acre-feet or the average inflow for the last 5-year period, whichever is less) minus the January-May evaporation estimate (8,800 acre-feet).

2. Calculate the estimated Irrigation Water Available, including all summer evaporation, by adding the Estimated Irrigation Water Storage (from item 1) to the estimated sediment pool summer evaporation (20,000 AF).

3. Use the above Shared Shortage Adjustment Table to determine the acceptable Irrigation Water Release from the Irrigation Water Available.

4. Subtract the Irrigation Water Release (from item 3) from the Estimated IWS (from item 1). The elevation of the lake corresponding to the resulting irrigation storage is the Estimated Shutoff Elevation. The shutoff elevation will not be below the bottom of the irrigation pool if over 119,000 AF of water is supplied to the districts, nor below 1,927.0 feet, msl. If the shutoff elevation is below the irrigation pool, the maximum irrigation release is 119,000 AF.

The annual shutoff elevation for irrigation releases would be finalized each June in accordance with the following procedure:

1. Compare the estimated May 31 IWS with the actual May 31 IWS.

2. If the actual end of May IWS is less than the estimated May IWS, lower the shutoff elevation to account for the reduced storage.

3. If the actual end of May IWS is equal to or greater than the estimated end of May IWS, the estimated shutoff elevation is the annual shutoff elevation.

4. The shutoff elevation will never be below elevation 1,927.0 feet, msl, and will not be below the bottom of the irrigation pool if more than 119,000 acre-feet of water is supplied to the districts.

APPENDIX L

Implementation of Additional Water Administration Under Subsections V.A.2. and V.A.4

When the projected or actual irrigation supply is less than 130,000 acre-feet as determined by Subsection V.A.2. of the Stipulation, Nebraska will continue to limit diversions by senior permit holders to their permitted diversion rate in accordance with Nebraska law. In addition, if water is needed for direct diversions at Guide Rock, Nebraska will close all natural flow permit diversions of surface water junior to February 26, 1948, on the tributaries to and on the Main Stem of the Republican River between Harlan County Lake and Guide Rock unless a significant runoff event is occurring and is expected to produce runoff in excess of the useable diversion at the Superior-Courtland Diversion Dam or water can not be diverted due to an unusual operational problem. In such cases, Nebraska will notify the U.S. Bureau of Reclamation and Managers of Kansas Bostwick Irrigation District and Nebraska Bostwick Irrigation District that junior permits will be allowed to divert up to a specified flow rate not to exceed the average daily flow of water that would otherwise pass the Superior-Courtland Diversion Dam during the time of the event. If requested, the parties will promptly exchange information and attempt to resolve any concerns. At the end of the period specified in Nebraska's notice, Nebraska will again close all juniors unless conditions warrant an additional notice of Nebraska's intent to allow some junior permits to divert.

As indicated in Subsection V.A.4. of the Stipulation, Kansas and Nebraska agree to work with the U. S. Bureau of Reclamation to minimize the bypass flows at the Superior-Courtland Diversion Dam. If any party believes good

faith efforts have not been made to minimize the bypass flows, it shall notify the other parties and a joint determination shall be made on action to implement subsection V.A.4.

APPENDIX M

Alternative Water-Short Year Administration

1. When the projected water supply pursuant to the methodology described in Subsection V.A.2. in the Stipulation is less than 130,000 Acre-feet, in lieu of the requirements of Subsection V.B.2.e.i. of the Stipulation, Nebraska may elect to implement a Plan for Reduction of Computed Beneficial Consumptive Uses (Plan) approved pursuant to paragraph 3.

2. Each Plan shall indicate the actions which Nebraska would undertake to reduce its Computed Beneficial Consumptive Uses from the base condition and the amount of reduction expected from those actions. A Plan's designed reductions in Computed Beneficial Consumptive Uses shall be evaluated by the RRCA using methods consistent with the RRCA Accounting Procedures and the RRCA Groundwater Model.

3. Nebraska may submit one or more Plans to the RRCA and the RRCA shall take action regarding such Plan(s) pursuant to the schedule below. Nebraska must submit new plans or modifications to existing Plans to the RRCA prior to August 1 for the RRCA's consideration. The RRCA must take action on new Plans or modifications to existing plans prior to Nov. 1 of that same year. Once approved, a Plan shall expire three years from the January 1 following the Plan's approval. After a Plan expires, Nebraska may submit the same Plan to the RRCA according to the above schedule. The RRCA may approve multiple Plans.

4. If Nebraska elects to implement a Plan, Nebraska will provide notice to the RRCA by April 1 of its intention to implement a Plan for that year. If an approved Plan is

implemented, Nebraska's Computed Beneficial Consumptive Use of its Allocation above Guide Rock in Water-Short Year Administration shall be calculated on a three year running average of the current year plus the previous two years. Notwithstanding compliance under a three year running average, the two year sum of Nebraska's current and previous year's Computed Beneficial Consumptive Use in excess of its Allocation above Guide Rock, pursuant to Subsection V.B.2., of the Stipulation shall not exceed the amount of Computed Beneficial Consumptive Use that the Plan was designed to reduce above Guide Rock.

5. For any year in which Nebraska implements an approved Plan, such Plan shall be in effect for the remainder of the year unless the projected supply rises above 130,000 Acre-feet. At such time, Nebraska may revoke the Plan by notifying the RRCA. If Nebraska revokes a Plan, the provisions of Subsection V.B.2.e.i., if applicable, shall be in effect. If Nebraska revokes a Plan during the year, it may not resume the Plan in that year.

6. Nebraska may not elect this Alternative Water-Short Year Administration in any year if in the previous year, Water-Short Year Administration was in effect pursuant to Subsection V.B.1.b. and Nebraska failed to elect the Alternative Water-Short Year Administration in that year.

No. 126, Original

In The

Supreme Court of the United States

STATE OF KANSAS,

Plaintiff,

v.

STATE OF NEBRASKA

and

STATE OF COLORADO,

Defendants.

BEFORE THE HONORABLE VINCENT L. MCKUSICK
SPECIAL MASTER

FINAL SETTLEMENT STIPULATION
VOLUME 2 OF 5

December 15, 2002

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APPENDIX E1

Nebraska Laws

46-201
Water for irrigation; declared natural want.

Water for the purposes of irrigation in the State of Nebraska is hereby declared to be a natural want.

Source:
Laws 1895, c. 69, § 65, p. 268; R.S.1913, § 3369; Laws 1919, c. 190, tit. VII, art. V, div. 1, § 1, p. 831; C.S.1922, § 8406; C.S.1929, § 46-501.

46-202
Natural streams; unappropriated water; dedication to public use; appropriated water; further appropriation.

(1) The water of every natural stream not heretofore appropriated within the State of Nebraska, including the Missouri River is hereby declared to be the property of the public and is dedicated to the use of the people of the state, subject to appropriation.

(2) The water of every natural stream within the State of Nebraska, including the Missouri River, appropriated for storage in a surface reservoir or for underground water storage, is hereby declared to be subject to further appropriation for recovery and beneficial use.

Source:
Laws 1895, c. 69, § 42, p. 260; R.S.1913, § 3370; Laws 1919, c. 190, tit. VII, art. V, div. 1, § 2, p. 831; C.S.1922, § 8407; C.S.1929, § 46-502; R.S.1943, § 46-202; Laws 1963, c. 277, § 1, p. 833; Laws 1965, c. 271, § 1, p. 773; Laws 1980, LB 802, § 1; Laws 1983, LB 198, § 4.

46-202.01
Repealed. Laws 1965, c. 271, s. 3.

46-203
First appropriators; declared first in right.

As between appropriators, the one first in time is first in right.

Source:
Laws 1889, c. 68, § 7, p. 504; R.S.1913, § 3371; Laws 1919, c. 190, tit. VII, art. V, div. 1, § 3, p. 832; C.S.1922, § 8408; C.S.1929, § 46-503.

46-204
Natural streams; priority of appropriations; first in time, first in right; preference from nature of use.

The right to divert unappropriated waters of every natural stream for beneficial use shall never be denied except when such denial is demanded by the public interest. Priority of appropriation shall give the better right as between those using the water for the same purposes, but when the waters of any natural stream are not sufficient for the use of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming it for any other purpose, and those using the water for agricultural purposes shall have the preference over those using the same for manufacturing purposes.

Source:
Laws 1895, c. 69, § 43, p. 260; R.S.1913, § 3372; Laws 1919, c. 190, tit. VII, art. V, div. 1, § 4, p. 832; C.S.1922, § 8409; C.S.1929, § 46-504; R.S.1943, § 46-204; Laws 1963, c. 277, § 2, p. 833; Laws 1965, c. 271, § 2, p. 773; Laws 1981, LB 252, § 1.

46-205
First appropriators; date of priority.

The priority of an appropriation shall date from the filing of the application in the office of the Department of Natural Resources.

Source:
Laws 1895, c. 69, § 31, p. 254; R.S.1913, § 3373; Laws 1919, c. 190, tit. VII, art. V, div. 1, § 5, p. 832; C.S.1922, § 8410; C.S.1929, § 46-505; R.S.1943, § 46-205; Laws 2000, LB 900, § 94.

46-206
Appropriation; water to be returned to stream.

The water appropriated from a river or stream shall not be turned or permitted to run into the waters or channel of any other river or stream than that from which it is taken or appropriated, unless such stream exceeds in width one hundred feet, in which event not more than seventy-five percent of the regular flow shall be taken and any such taking shall be subject to the provisions of section 46-289.

Source:
Laws 1889, c. 68, § 6, p. 504; Laws 1893, c. 40, § 3, p. 378; R.S.1913, § 3376; Laws 1919, c. 190, tit. VII, art. V, div. 1, § 8, p. 832; C.S.1922, § 8413; C.S.1929, § 46-508; R.S.1943, § 46-206; Laws 1981, LB 252, § 2.

46-207
Appropriation; no land to be crossed by more than one ditch.

No tract of land shall be crossed by more than one ditch, canal or lateral without the written consent and agreement of the owners thereof, if the first ditch, canal or lateral can be made to answer the purpose for which the second is desired or intended.

Source:
Laws 1889, c. 68, § 3, p. 504; R.S.1913, § 3377; Laws 1919, c. 190, tit. VII, art. V, div. 1, § 9, p. 832; C.S.1922, § 8414; C.S.1929, § 46-509.

46-208 Transferred to section 61-205.

46-209 Transferred to section 61-206.

46-210 Transferred to section 61-207.

46-211 Repealed. Laws 1984, LB 897, s. 5.

46-212 Transferred to section 61-208.

46-212.01 Transferred to section 61-209.

46-212.02 Repealed. Laws 2000, LB 900, s. 256.

46-213 Transferred to section 61-211.

46-214 Repealed. Laws 1981, LB 545, s. 5

46-215 Transferred to section 61-212.

46-216 Transferred to section 61-213.

46-217 Transferred to section 61-214.

46-218 Transferred to section 61-215.

46-219 Transferred to section 61-216.

46-220 Repealed. Laws 1953, c. 157, s. 3.

46-221 Repealed. Laws 1953, c. 157, s. 3.

46-222 Repealed. Laws 1987, LB 140, s. 15.

46-223 Repealed. Laws 1987, LB 140, s. 15.

46-224 Repealed. Laws 1987, LB 140, s. 15.

46-225 Repealed. Laws 1953, c. 157, s. 3.

46-226 Determination of priority and amount of appropriation; duty of department.

The department shall make proper arrangements for the determination of priorities of right to use the public waters of the state and determine the same. The method of determining the priority and amount of appropriation shall be fixed by the department.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 7, p. 835; C.S.1922, § 8426; C.S.1929, § 81-6307; R.S.1943, § 46-226; Laws 2000, LB 900, § 95.

46-226.01
Application for recognition of incidental underground water storage; procedure.

Any person having an approved perfected appropriation may file with the department an application for recognition of incidental underground water storage associated with such appropriation on a form prescribed and furnished by the department without cost. Upon receipt of an application, the department shall proceed in accordance with rules and regulations adopted and promulgated by the department.

Source:
Laws 1983, LB 198, § 5; Laws 1985, LB 488, § 2.

46-226.02
Application; director; approval; conditions.

1) The director may approve an application filed pursuant to section 46-226.01 or 46-297 subject to the following conditions:

(a) The rate, quantity, or time of surface water diversion shall not be increased from that approved for the appropriation at the time the application is filed;

(b) If the water stored or to be stored underground will be used for irrigation purposes, the director may approve the service of additional amounts of land or different lands not identified to be served with facilities included under the original appropriation, if the director determines that the change is in the public interest, and that any interference with the rights of senior appropriators as a result of such change is unavoidable and not material;

(c) The priority date shall remain the same as that of the original appropriation; and

(d) When the application is for recognition of incidental underground water storage, such stored water is being withdrawn or is otherwise being used for beneficial purposes.

(2) For an application filed pursuant to section 46-226.01, the burden shall be on the applicant to prove that underground water storage has occurred.

(3) The director may grant the application in a modified or reduced form, if required by the public interest, and may impose such other reasonable conditions as deemed appropriate to protect the public interest.

(4) The director's order of approval shall specify:

(a) The source of the water stored or to be stored underground;

(b) The underground water storage method; and

(c) A description of the area served or to be served by the water stored underground.

Source:
Laws 1983, LB 198, § 6; Laws 1985, LB 488, § 3; Laws 1995, LB 350, § 2.

46-226.03
Terms, defined.

For purposes of sections 46-226 to 46-243:

(1) Department means the Department of Natural Resources;

(2) Director means the Director of Natural Resources;

(3) Incidental underground water storage has the same meaning as in section 46-296;

(4) Induced ground water recharge means the process by which ground water withdrawn from wells near a natural stream is replaced by surface water flowing in the stream?

(5) Intentional underground water storage has the same meaning as in section 46-296;

(6) Public water supplier means a city, village, municipal corporation, metropolitan utilities district, rural water district, natural resources district, irrigation district, reclamation district, or sanitary and improvement district which supplies or intends to supply water to inhabitants of cities, villages, or rural areas for domestic or municipal purposes;

(7) Underground water storage has the same meaning as in section 46-296; and

(8) Well means a well, subsurface collector, or other artificial opening or excavation in the ground from which

ground water flows under natural pressure or is artificially withdrawn.

Source:
Laws 1993, LB 301, § 1; Laws 2000, LB 900, § 96.

46-227
Water in streams; measurement; duty of department.

The department shall measure or cause to be measured the quantity of water flowing in the several streams of the state, shall make a record thereof in the office of the department, and shall from time to time make such additional measurements as may be necessary, in considering applications for water appropriations and such controversies as may arise regarding the distribution of water.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 8, p. 835; C.S.1922, § 8427; C.S.1929, § 81-6308; R.S.1943, § 46-227; Laws 2000, LB 900, § 97.

46-228
Flowing water; standards of measurement.

The standard of measurement for flowing water, both for determining the flow of water in natural streams and for the purpose of distributing it therefrom when appropriations have been made for direct flow, shall be one cubic foot per second of time. The standard of measurement of the volume of water shall be one acre-foot, equivalent to forty-three thousand five hundred sixty cubic feet, and when water is stored in any natural or artificial reservoir, this standard shall be used for determining the capacity of storage reservoirs, the amount stored, and the amount used therefrom, except that for public water supplier

appropriations, the standard of measurement may be in terms of gallons.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 21, p. 843; C.S.1922, § 8440; C.S.1929, § 81-6321; R.S.1943, § 46-228; Laws 1993, LB 301, § 2.

46-229
Appropriations; beneficial or useful purpose required; termination; hearing.

All appropriations for water must be for some beneficial or useful purpose and, except as provided in sections 46-290 to 46-294 and 46-2,122 to 46-2,125, when the appropriator or his or her successor in interest ceases to use it for such purpose for more than three consecutive years, the right may be terminated only by the director following a hearing pursuant to sections 46-229.02 to 46-229.05.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 9, p. 835; C.S.1922, § 8428; C.S.1929, § 81-6309; R.S.1943, § 46-229; Laws 1947, c. 172, § 1(1), p. 520; Laws 1983, LB 380, § 1; Laws 1984, LB 818, § 1; Laws 1993, LB 302, § 2; Laws 1995, LB 99, § 14; Laws 2000, LB 900, § 98.

46-229.01
Department; examine condition of ditches.

The department shall, as often as necessary, examine into the condition of all ditches constructed or partially constructed within the state and shall compile information concerning the condition of every water appropriation and all ditches and canals and other works constructed or partially constructed thereunder.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 9, p. 836; C.S.1922, § 8428; C.S.1929, § 81-6309; R.S.1943, § 46-229; Laws 1947, c. 172, § 1(2), p. 520; Laws 2000, LB 900, § 99.

46-229.02
Adjudication of water rights; abandonment; notice; hearing; forfeiture; cancellation.

If it shall appear that any water appropriation has not been used for some beneficial or useful purpose or having been so used at one time has ceased to be used for such purpose for more than three consecutive years, the department shall appoint a place and time of hearing, shall serve notice upon the owners of such water appropriation or such ditch, canal, or other diverting works to show cause by such time and at such place why the water appropriation owned by such person should not be declared forfeited and annulled because such water appropriation had not been used for more than three consecutive years prior to receiving such notice, and shall also serve such notice upon the landowners under such water appropriation, ditch, or canal. The notice shall contain a copy of section 46-229.04 and a department telephone number which any person may call for information regarding sufficient cause for nonuse. A water appropriation may be canceled by the department without complying with sections 46-229.01 to 46-229.04 if the owner of such appropriation fails to comply with any of the conditions of approval in the permit.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 9, p. 836; C.S.1922, § 8428; C.S.1929, § 81-6309; R.S.1943, § 46-229; Laws 1947, c. 172, § 1(3), p. 521; Laws 1963, c. 278, § 1, p. 834; Laws 1983, LB 380, § 2; Laws 1984, LB 1000, § 1.

46-229.03
Adjudication of water rights; notice; contents; service.

(1) The notice shall contain the date and place of hearing, a description of the water appropriation, the number thereof upon the books and records of the department, the date of priority, the point of diversion, and a description of the lands which are located under such water appropriation. It shall call upon all persons interested in such water appropriation to show cause why all or part of the same should not be canceled and annulled. The notice shall be served personally or by registered or certified mail at least thirty days before the date of hearing upon those owning or controlling the water appropriation and the ditch, canal, or reservoir for the purpose of using or storing water for any purpose if they are known to the department to be the owners thereof and maintain an office within the State of Nebraska.

(2) If the persons named in subsection (1) of this section do not maintain an office within the State of Nebraska, then such notice shall be served by the publication in some legal newspaper published or of general circulation in the county in which the place of diversion of such water appropriation is located, once a week for three consecutive weeks prior to the date of hearing.

(3) Except as provided in subsection (4) of this section, a copy of such notice shall be personally served or sent by either registered or certified mail to all other persons appearing from the records of the county clerk or register of deeds to be landowners under such appropriation.

(4) Landowners whose property under such appropriation is located within the corporate limits of a city or village shall be served by the publication of such notice in

a legal newspaper published or of general circulation in the county in which the city or village is located. The notice shall be published once a week for three consecutive weeks prior to the date of hearing.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 9, p. 836; C.S.1922, § 8428; C.S.1929, § 81-6309; R.S.1943, § 46-229; Laws 1947, c. 172, § 1(4), p. 521; Laws 1957, c. 242, § 39, p. 852; Laws 1973, LB 186, § 5; Laws 1980, LB 648, § 1; Laws 1986, LB 960, § 32; Laws 1987, LB 140, § 3.

46-229.04
Adjudication of water rights; hearing; decision; nonuse; considerations; consolidation of proceedings; when.

(1) At such hearing the verified field investigation report of an employee of the department shall be prima facie evidence for the forfeiture and annulment of such water appropriation. If no one appears at the hearing, such water appropriation or unused part thereof shall be declared forfeited and annulled. If someone interested appears and contests the same, the department shall hear evidence, and if it appears that such water has not been put to a beneficial use or has ceased to be used for such purpose for more than three consecutive years, the same shall be declared canceled and annulled unless the department finds that there has been sufficient cause for such nonuse as provided for in subsection (3) of this section.

(2) If it is determined that such water has not been put to beneficial use or has ceased to be used for such purpose for more than ten consecutive years, the water right shall be declared canceled and annulled, except that for any water appropriation or part of a water appropriation on

any tract of land under separate ownership, sufficient cause for nonuse shall be deemed to exist even if the period of nonuse was for more than ten consecutive years if the landowner used the available water supply on only part of the land under the water appropriation because of an inadequate water supply.

(3) If the period of nonuse did not exceed ten consecutive years, sufficient cause shall be deemed to exist if such nonuse was a result of one or more of the following:

(a) The land subject to the appropriation was placed under an acreage reserve or production quota program or otherwise withdrawn from use as required for participation in any federal or state program;

(b) Federal, state, or local laws, rules, or regulations temporarily prevented or restricted such use;

(c) The available water supply was inadequate to enable the owner to use the water for a beneficial or useful purpose;

(d) Use of the water was unnecessary because of climatic conditions;

(e) Circumstances were such that a prudent person, following the dictates of good husbandry, would not have been expected to use the water;

(f) The works, diversions, or other facilities essential to use of the water were destroyed by a cause not within the control of the owner of the appropriation, and good faith efforts to repair or replace the works, diversions, or facilities have been and are being made;

(g) The owner of the appropriation was in active involuntary service in the armed forces of the United States or was in active voluntary service during a time of crisis; or

(h) Legal proceedings prevented or restricted use of the water. The department may specify by rule and regulation other circumstances which shall be deemed to constitute sufficient cause.

(4) If at the time of the hearing there is an application for incidental or intentional underground water storage pending before the department and filed by the owner of the appropriation, the proceedings shall be consolidated.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 9, p. 837; C.S.1922, § 8428; C.S.1929, § 81-6309; R.S.1943, § 46-229; Laws 1947, c. 172, § 1(5), p. 521; Laws 1973, LB 186, § 6; Laws 1983, LB 380, § 3; Laws 1987, LB 140, § 4; Laws 1987, LB 356, § 1; Laws 1995, LB 350, § 3; Laws 2000, LB 900, § 100.

46-229.05
Adjudication of water rights; appeal.

An appeal may be taken from the decision of the department upon such hearing as provided by section 61-207.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 9, p. 837; C.S.1922, § 8428; C.S.1929, § 81-6309; R.S.1943, § 46-229; Laws 1947, c. 172, § 1(6), p. 522; Laws 1991, LB 732, § 106; Laws 2000, LB 900, § 101.

46-229.06
Repealed. Laws 1998, LB 895, s. 1.

46-230
Adjudication of water rights; record; duty of landowner to furnish address; notice.

As the adjudication of a stream progresses and as each claim is finally adjudicated, the director shall make and cause to be entered of record in his or her office an order determining and establishing the priorities of right to use the water of such stream, the amount of the appropriation of the persons claiming water from such stream and the character of use for which each appropriation is found to have been made, and the address of the owner of each water appropriation. It shall be the duty of every owner of an appropriation to give notice to the department of its address and any change of its address or of the name of the owner of the appropriation. Notification shall be in such form and shall include such evidence of ownership as the director may by regulation require. Upon receipt of such notice, the department shall update its records. The department shall not collect a fee for the filing of the notice.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 10, p. 837; C.S.1922, § 8429; C.S.1929, § 81-6310; Laws 1941, c. 29, § 11, p. 137; C.S.Supp.,1941, § 81-6310; R.S.1943, § 46-230; Laws 1973, LB 186, § 7; Laws 1979, LB 204, § 1; Laws 2000, LB 900, § 102; Laws 2001, LB 667, § 2; Laws 2002, LB 458, § 1. Effective date July 20, 2002.

46-231
Amount and priority of appropriation; determination; limitation of amount; storage water.

Each appropriation shall be determined in its priority and amount by the time at which it is made and the amount of water which the works are constructed to carry. An appropriator shall at no time be entitled to the use of more than he or she can beneficially use for the purposes for which the appropriation has been made, and the amount of any appropriation made by means of enlargement of the distributing works shall be determined in like manner.

An allotment from the natural flow of streams for irrigation shall not exceed one cubic foot per second of time for each seventy acres of land and shall not exceed three acre-feet in the aggregate during one calendar year for each acre of land for which such appropriation has been made, and an allotment shall not exceed the least amount of water that experience may indicate is necessary, in the exercise of good husbandry, for the production of crops. Such limitations do not apply to storage waters or to water appropriations transferred pursuant to sections 46-2,122 to 46-2,125 and 46-2,127 to 46-2,129.

When storage water is being used in addition to the natural flow, the person in charge of the ditch or canal shall, upon his or her request and within twenty-four hours thereof, be notified in writing by the user of such storage waters of the time of withdrawal from natural streams to be distributed according to law.

When an appropriation is for irrigation purposes and the amount is so small that a proper distribution and application is impractical, as much water as the applicant can use without waste may be allotted for a limited time

so fixed by the department as to give each appropriator his or her just share without violating other rights, so long as (1) the volume of water used in a twenty-four-hour period does not exceed the amount of water that would otherwise have been allowed at the approved fixed continuous rate for a twenty-four-hour period or (2) the volume of water used in a seven-day, Monday-through-Sunday period does not exceed the amount of water that would otherwise have been allowed at the approved fixed continuous rate for a seven-day period. The department shall determine schedules among appropriators to assure that other rights are not violated.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 11, p. 837; C.S.1922, § 8430; Laws 1929, c. 133, § 1, p. 486; C.S.1929, § 81-6311; R.S.1943, § 46-231; Laws 1987, LB 140, § 5; Laws 1993, LB 789, § 1; Laws 1995, LB 99, § 15; Laws 2000, LB 900, § 103.

46-232
Repealed. Laws 1955, c. 183, s. 6.

46-233
Application to appropriate water; time of making; contents; procedure; priority date; notice; hearing; temporary permit; emergency use.

(1) The United States and every person intending to appropriate any of the public waters of the State of Nebraska shall, before (a) commencing the construction, enlargement, or extension of any works for such purpose, (b) performing any work in connection with such construction, enlargement, or extension, or (c) taking any water from any constructed works, make an application to the department for a permit to make such appropriation. A permit may be obtained to appropriate public waters for

intentional underground water storage and recovery of such water. A public water supplier may make application to appropriate public waters for induced ground water recharge.

(2) The application shall be upon a form prescribed and furnished by the department without cost to an applicant. Such application shall set forth (a) the name and post office address of the applicant, (b) the source from which such appropriation shall be made, (c) the amount of the appropriation desired, as nearly as it may be estimated, (d) the location of any proposed work in connection with the appropriation, (e) the estimated time required for its completion, which estimated time shall include the period required for the construction of ditches, pumps, and other features or devices, (f) the time estimated at which the application of the water for the beneficial purposes shall be made, which time shall be limited to a reasonable time following the estimated time of completion of the work when prosecuted with diligence, (g) the purpose for which water is to be applied and (i) if for induced ground water recharge by a public water supplier, a statement of the times of the year when and location along a stream where flows for induced ground water recharge are proposed and (ii) if for irrigation, a description of the land to be irrigated by the water and the amount, and (h) such facts and supporting documentation as are required by the department which shall include, but not be limited to, the depth of all wells, the extent of the underlying aquifer, the expected rate of recharge, the minimum flow or flows necessary to sustain the well field throughout the reach identified, and the period of time that a well field would continue to meet minimal essential needs of the public water supplier when there is no flow as those factors

relate to and are part of an evaluation of pertinent hydrologic relationships.

A public water supplier making application for induced ground water recharge may submit with its application a statement of the amount of induced ground water recharge water which the public water supplier presently uses as well as the amount of induced ground water recharge water it anticipates using in the next twenty-five-year period. Such statement shall also quantify the total amount of water the public water supplier presently uses from the well field as well as the total amount of water it anticipates using from the well field in the next twenty-five-year period.

(3) Upon receipt of an application containing the information set forth in this section, the department shall (a) make a record of the receipt of the application, (b) cause the application to be recorded in its office, and (c) make a careful examination of the application to ascertain whether it sets forth all the facts necessary to enable the department to determine the nature and amount of the proposed appropriation. If such an examination shows the application in any way defective, it shall be returned to the applicant for correction, with a statement of the correction required, within ninety days after its receipt. Ninety days shall be allowed for the refiling of the application, and in default of such refiling, the application shall stand dismissed. Except as provided in subsection (4) of this section, if so filed and corrected as required within such time, the application shall, upon being accepted and allowed, take priority as of the date of the original filing, subject to compliance with the future provisions of the law and the rules and regulations thereunder. During the pendency of any application or upon its approval, the

department, upon proper authorization and request of the applicant, may assign the application a later priority date.

(4) For public water supplier wells in existence on September 9, 1993, the priority date assigned to an application for induced ground water recharge made by a public water supplier shall be:

(a) June 27, 1963, for water supply wells and facilities constructed and placed in service on or before June 27, 1963;

(b) January 1, 1970, for water supply wells and facilities constructed and placed in service on or after June 28, 1963, and on or before December 31, 1969;

(c) January 1, 1980, for water supply wells and facilities constructed and placed in service on or after January 1, 1970, and on or before December 31, 1979;

(d) January 1, 1990, for water supply wells and facilities constructed and placed in service on or after January 1, 1980, and on or before December 31, 1989; and

(e) January 1, 1993, for water supply wells and facilities constructed and placed in service on or after January 1, 1990, and on or before September 9, 1993.

(5) Prior to taking action on an application for induced ground water recharge, the director shall publish notice of such application at the applicant's expense at least once each week for three consecutive weeks in a newspaper of general circulation in the area of the stream segment and also in a newspaper of statewide circulation. The notice shall state that any person having an interest

may, in writing, object to the application. Any such objection shall be filed with the department within two weeks after the final publication of the notice.

(6) After the director has accepted the application made under subsection (2) of this section as a completed application and published notice as required under subsection (5) of this section, the director shall, if he or she determines that a hearing is necessary, set a time and place for a public hearing on the application. The hearing shall be held within reasonable proximity to the area in which the wells are or would be located. At the hearing the applicant shall present all hydrological data and other evidence supporting its application. All interested parties shall be allowed to testify and present evidence relative to the application.

(7) An unapproved application pending on August 26, 1983, may be amended to include appropriation for intentional underground water storage and recovery of such water.

(8) Application may be made to the department for a temporary permit to appropriate water. The same standards for granting a permanent appropriation shall apply for granting such temporary permit except when the temporary permit is for road construction or other public use construction and the amount of water requested is less than ten acre-feet in total volume. For temporary permits for public-use construction, the applicant shall include on the application the location of the diversion, the location of use, a description of the project, the amount of water requested, and the person to contact. Temporary permits for public-use construction and for less than ten acre-feet in total volume may be granted without any determination

of unappropriated water and shall be considered to be in the public interest. The requirement of filing a map or plans with the application for a temporary permit may be waived at the discretion of the director. In granting a temporary permit, the director shall specify a date on which the right to appropriate water under the permit shall expire. Under no circumstances shall such date be longer than one calendar year after the date the temporary permit was granted. Temporary permits shall be administered during times of shortage based on priority. The right to appropriate water shall automatically terminate on the date specified by the director on the temporary permit without further action by the department.

(9) Water may be diverted from any stream, reservoir, or canal by any fire department or emergency response services for the purpose of extinguishing a fire in progress in an emergency without obtaining a permit from the department. The installation of a dry well for this purpose is allowed without the prior permission of the department, but the department shall be informed of any such installation, its location, and the party responsible for its installation and maintenance within thirty days after the installation.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 16, p. 841; C.S.1922, § 8435; C.S.1929, § 81-6316; R.S.1943, § 46-233; Laws 1955, c. 138, § 1, p. 513; Laws 1957, c. 198, § 1, p. 696; Laws 1983, LB 198, § 7; Laws 1993, LB 301, § 3; Laws 1993, LB 789, § 2; Laws 2000, LB 900, § 104; Laws 2001, LB 129, § 3.

46-233.01
Permit to appropriate water for use in another state; application; considerations; determination.

(1) Application may be made to the department for a permit to appropriate any of the public surface waters of the State of Nebraska to be diverted or stored in Nebraska for use in any other state.

(2) In determining whether to grant such application, the director shall consider the following factors:

(a) Whether unappropriated water exists in the source of supply named in the application;

(b) Whether such application and appropriation when perfected are not otherwise detrimental to the public welfare;

(c) Whether denial of the application is demanded by the public interest; and

(d) Whether the proposed use is a beneficial use of water.

(3) When determining whether denial of such application is demanded by the public interest, the director shall consider the following factors:

(a) The economic, environmental, and other benefits of the proposed use;

(b) Any adverse economic, environmental, and other impacts of the proposed use;

(c) Any current beneficial uses being made of the unappropriated water;

(d) The economic, environmental, and other benefits of not allowing the appropriation and preserving the water supply for beneficial uses within the state;

(e) Alternative sources of water supply available to the applicant; and

(f) Any other factors consistent with the purposes of this section that the director deems relevant to protecting the interests of the state and its citizens.

The application shall be deemed in the public interest if the overall benefits to Nebraska are greater than the adverse impacts to Nebraska. The director's order granting or denying an application shall specify the reasons for such action, including a discussion of the required factors for consideration, and shall document such decision by reference to the hearing record, if any, and to any other sources used by the director in making the decision.

Source:
Laws 1953, c. 161, § 1, p. 504; Laws 1987, LB 146, § 4; Laws 2000, LB 900, § 105.

46-233.02
Appropriation of water for use in another state; laws governing; rights of appropriators.

Such applications and all rights thereunder shall be governed by the provisions of the Constitution and statutes of Nebraska as now existing or hereafter amended. Appropriators under the provisions of sections 46-233.01 and 46-233.02 shall have no greater rights than those under appropriations for use within the State of Nebraska.

Source:
Laws 1953, c. 161, § 2, p. 505.

46-234
Application for water; refusal; grounds; effect; necessity for consent; perfection of appropriation; time allowed.

If there is no unappropriated water in the source of supply or if a prior appropriation has been perfected to water the same land to be watered by the applicant, the department may refuse such application. An application may also be refused (1) if existing facilities other than those owned or operated by the applicant are to be utilized and the applicant fails to show, by documentary evidence, agreements with the owner and operator of the facilities to allow the applicant to use such facilities or (2) when denial is demanded by the public interest. The party making such application shall not prosecute such work so long as such refusal continues in force. An application for appropriation shall not be exclusive of any of the lands included therein until the owner or owners of such land give consent to the same in proper form duly acknowledged. No application made or canal constructed, prior to the application of the water and the perfection of an appropriation therefor or the filing of the consent, shall prevent other applications from being allowed and other canals from being constructed to irrigate the same lands or any of them. In case of an application for an appropriation of water for the development of water power, the department shall promptly act upon such application and limit the time within which such appropriation shall be perfected to the period within which the proposed power project can be completed by uninterrupted and expeditious construction.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 18, p. 842; Laws 1921, c. 291, § 1, p. 941; C.S.1922, § 8437; C.S.1929, § 81-6318; R.S.1943, § 46-234; Laws 1981, LB 252, § 3; Laws 1984, LB 672, § 1; Laws 2000, LB 900, § 106.

46-235
Application for water; approval; date of priority; conditional or partial approval; hearing; director; powers and duties.

(1) For applications other than those to appropriate public waters for induced ground water recharge, if there is unappropriated water in the source of supply named in the application, if such application and appropriation when perfected are not otherwise detrimental to the public welfare, and if denial of the application is not demanded by the public interest, the department shall approve the application and shall make a record in its office and return the application to the applicant, who shall on receipt thereof be authorized to proceed with the work and to take such measures as may be necessary to perfect such application into an appropriation. The priority of such application and appropriation when perfected shall date from the filing of the application in the office of the department, and the date of filing shall be regarded as the priority number thereof. The department may, upon examination of such application, approve it for a shorter period of time for perfecting the proposed appropriation or for a smaller amount of water or of land than applied for. The department may also impose such other reasonable conditions as it deems appropriate to protect the public interest. An applicant aggrieved by the action of the department shall, upon proper showing, be granted a hearing before the department, which hearing shall be conducted in accordance with the rules of procedure adopted by the

department, and a full and complete record shall be kept of all such proceedings. When a complete record of the case has been made up, the department shall render an opinion of facts and of law based upon the evidence before it.

(2)(a) An application for an induced ground water recharge appropriation for public water supplier wells constructed and placed in service before September 9, 1993, shall be approved by the director if he or she finds that:

(i) The appropriation is necessary to maintain the well or wells for the use or uses for which the appropriation has been requested;

(ii) The rate and timing of the flow is the amount reasonably necessary to maintain the well or wells for the uses for which the appropriation has been requested; and

(iii) The application is in the public interest and is not detrimental to the public welfare. There shall be a rebuttable presumption that wells which are the subject of an application pursuant to subdivision (2)(a) of this section are in the public interest and are not detrimental to the public welfare.

(b) The director may approve the application for a well or wells constructed before September 9, 1993, but may specifically deny the applicant the right to request regulation of junior appropriators if the director, at the time of approval, finds that the well or wells, at the time of their construction, were not located, designed, or constructed so as to take reasonable advantage of aquifer conditions in the area to minimize the frequency and amount of the demand for flows for induced ground water recharge. Thereafter a public water supplier holding an

approved application which has been denied the right to request regulation of junior appropriators may petition the director for a hearing to present evidence showing the director that the well or wells have been modified, relocated, or reconstructed to take reasonable advantage of the aquifer conditions in the area. If the director determines that the well or wells have been so modified, relocated, or reconstructed, the director shall cause to be modified the approval of the application to allow for the regulation of junior appropriators, subject to the restrictions or conditions applicable to public water suppliers.

(c) An application for an induced ground water recharge appropriation for public water supplier wells constructed and placed in service before September 9, 1993, shall not be subject to the requirements of sections 46-288 and 46-289.

(3) An application for an induced ground water recharge appropriation for public water supplier wells constructed or to be constructed on or after September 9, 1993, shall be approved by the director if he or she makes the findings required by subdivision (2)(a) of this section and further finds that:

(a) There is unappropriated water available for the appropriation; and

(b) The well or wells involved have been or will be located and constructed to take reasonable advantage of aquifer conditions in the area to minimize the frequency and amount of the demand for flows for induced ground water recharge.

(4)(a) The director may approve the application filed under subsection (2) or (3) of this section for a smaller

amount of water than requested by the applicant. The director may also impose reasonable conditions on the manner and timing of the appropriation which the director deems necessary to protect the public interest. The director may grant an appropriation for specific months of the year if so demanded by the public interest. If the director approves the application, he or she shall issue a written order, which written order shall include the findings required by this section, the amount of the appropriation, and any conditions or limitations imposed under this section.

(b) In determining whether an application for an appropriation for induced ground water recharge is in the public interest, the director's considerations shall include, but not be limited to, the possible adverse effects on existing surface water or ground water users and the economic, social, and environmental value of such uses, including, but not limited to, irrigation, recreation, fish and wildlife, public water supply, induced ground water recharge for public water supply systems, and water quality maintenance.

(c) The stream segment and the determination of a reasonable and necessary amount of water required for induced ground water recharge purposes throughout the reach shall be defined specifically by the director in the order issued under this section.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 17, p. 842; C.S.1922, § 8436; C.S.1929, § 81-6317; R.S.1943, § 46-235; Laws 1981, LB 252, § 4; Laws 1987, LB 140, § 6; Laws 1993, LB 301, § 4; Laws 2000, LB 900, § 107.

46-235.01
Public water supplier; appropriation for induced ground water recharge; hearing; evidence of beneficial use; priority date; vesting.

A public water supplier which has received an appropriation for induced ground water recharge pursuant to section 46-235 may, from time to time and within twenty-five years after the priority assigned pursuant to section 46-233, petition the department for a hearing to present evidence showing that all or part of the original projection for additional water needs specified pursuant to subsection (2) of section 46-233 corresponds with the actual use. To the extent the public water supplier is making beneficial use of all or a portion of the water projected in the original application, the right to use such additional water shall vest and the priority date of such anticipated water use shall date back to the priority date assigned pursuant to section 46-233. A public water supplier may not request such a hearing at intervals of less than five years for each approved application.

Source:
Laws 1993, LB 301, § 5.

46-235.02
Public water supplier; payment of compensation; when.

(1) Just compensation shall be required if a public water supplier exercises a preference to the injury of a senior appropriator.

(2) Just compensation shall be provided by a public water supplier to any injured junior appropriator whose appropriation was perfected prior to September 9, 1993, if and to the extent such injury resulted from regulation of

junior appropriators requested by the public water supplier to provide water for any purpose other than domestic. Such compensation shall not be required to a junior appropriator if the regulation requested is to provide water for domestic purposes only. At the time any junior appropriator whose appropriation was perfected prior to September 9, 1993, is regulated at the request of a public water supplier, the department shall determine for each such appropriator the extent to which the regulation is for domestic purposes and the extent to which it is for other purposes.

(3) A cause of action for just compensation shall accrue at the time a junior appropriator is regulated by the department.

Source:
Laws 1993, LB 301, § 6; Laws 2000, LB 900, § 108.

46-235.03
Public water suppliers; natural resources districts; powers.

Natural resources districts shall have the authority to impose restrictions or controls on public water suppliers as specified in the Nebraska Ground Water Management and Protection Act. Such restrictions or controls may limit the withdrawal of ground water to a greater degree or extent than is otherwise permitted or allowed by a permit issued by the department.

Source:
Laws 1993, LB 301, § 7; Laws 2000, LB 900, § 109.

46-235.04
Induced ground water recharge appropriations; administration; transfer of priority dates; procedure.

(1) Induced ground water recharge appropriations shall be administered in the same manner as prescribed by Chapter 46, article 2, for other appropriations. Appropriations for induced ground water recharge may be canceled and annulled as provided in section 46-229.04.

(2) The department may approve the transfer of priority dates among water wells, including replacement water wells, located within a single well field that are subject to an induced recharge appropriation, or are part of an application for such an appropriation, to improve the water well field's efficiency of operation with respect to river flow. The transfers shall be approved if the department finds that (a) the transfers would not increase the quantity of induced ground water recharge under the original priority date or application, (b) the amount of water withdrawn from water wells under the original priority date or application would not increase, (c) the quantity of streamflow needed to sustain well field operation under the original priority date would decrease, (d) the transfer would not impair the rights of other appropriators, and (e) the transfer is in the public interest in the same manner as provided in section 46-235. The department may assign multiple priority dates to a single water well that replaces two or more water wells which are abandoned. Replacement water wells installed pursuant to this subsection must be installed within the same well field as the abandoned water well. Notice shall be furnished and any hearing held as provided in sections 46-291 to 46-293. For purposes of this subsection, single well

field means those contiguous tracts of land owned or leased by the applicant containing two or more water wells subject to induced recharge.

Source:
Laws 1993, LB 301, § 8; Laws 1995, LB 871, § 2; Laws 1997, LB 30, § 1; Laws 2000, LB 900, § 110.

46-236
Application for water power; lease from state required; fee; renewal; cancellation; grounds.

Within six months after the approval of an application for water power as provided for in section 46-234 and before placing water to any beneficial use, the applicant shall enter into a contract with the State of Nebraska, through the department, for leasing the use of all water so appropriated. Such lease shall be upon forms prepared by the department, and the time of such lease shall not run for a greater period than fifty years; and for the use of water for power purposes the applicant shall pay into the state treasury on or before January 1 each year fifteen dollars for each one hundred horsepower for all water so appropriated. Upon application of the lessee or its assigns, the department shall renew the lease so as to continue it and the water appropriation in full force and effect for an additional period of fifty years.

Upon the failure of the applicant to comply with any of the provisions of such lease and the failure to pay any of such fees, the department shall notify the lessee that the required fees have not been paid to the department or that the lessee is not otherwise in compliance with the provisions of the lease. If the lessee has not come into compliance with all provisions of the lease or has not paid to the department all required fees within fifteen calendar days

after the date of such notice, the department shall issue an order denying the applicant the right to divert or otherwise use the water appropriation for power production. The department shall rescind the order denying use of the water appropriation at such time as the lessee has come into compliance with all provisions of the lease and has paid all required fees to the department. If after forty-five calendar days from the date of issuance of the order the lessee is not in compliance with all provisions of the lease or required fees have not been paid to the department, such lease and water appropriation shall be canceled by the department.

Source:
Laws 1921, c. 291, § 1, p. 942; C.S.1922, § 8437; C.S.1929, § 81-6318; R.S.1943, § 46-236; Laws 1972, LB 1306, § 1; Laws 1987, LB 140, § 7; Laws 2000, LB 900, § 111.

46-237
Map or plat; requirements; failure to furnish; effect.

Within six months after approval and allowance of an application other than an application to appropriate public waters for induced ground water recharge, the applicant shall file in the office of the department a map or plat which shall conform to the rules and regulations of the department as to material, size, and coloring and be upon a scale of not less than two inches to the mile. Such map or plat shall show the source from which the proposed appropriation is to be taken and all proposed dams, dikes, reservoirs, canals, powerhouses, and other structures for the purpose of storing, conveying, or using water for any purpose whatsoever and their true courses or positions in connection with the boundary lines and corners of lands which they occupy. Land listed for irrigation shall be shown in government subdivisions or fractions thereof, as

the case may be, and no rights shall be deemed to have been acquired until the provisions of this section have been complied with. Failure to so comply shall work a forfeiture of the appropriation and all rights thereunder.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 19, p. 843; C.S.1922, § 8438; C.S.1929, § 81-6319; R.S.1943, § 46-237; Laws 1993, LB 301, § 9; Laws 2000, LB 900, § 112.

46-238
Construction of project; time restrictions; failure to comply; forfeiture; extension of time for completion of work; appeal.

(1) Within six months after the approval of any application for water for irrigation, power, or other useful purpose by the department, the person making such application shall commence the excavation or construction of the works in which it is intended to divert the water and the actual construction of any water power plant and reservoir or reservoirs for storage in connection therewith and shall vigorously, diligently, and uninterruptedly prosecute such work to completion unless temporarily interrupted by some unavoidable and natural cause. A failure to comply with this section shall work a forfeiture of the appropriation and all rights under the appropriation. The cost of promotion and engineering work shall not be considered a part of the cost of construction, and the progress of the construction work shall be such that one-tenth of the total work shall be completed within one year from the date of approval of the application. The construction of all work required in connection with the proposed project shall be prosecuted in the manner described in this section and with such a force as shall assure the average rate of constructional progress necessary to complete such work

or works within the time stipulated in the approval of such application, notwithstanding the ordinary delays and casualties that must be expected and provided against. A failure to carry on the construction of either an irrigation project or a water power project as outlined in this section shall work a forfeiture of the appropriation and all rights under the appropriation, and the department shall cancel such appropriation. The department shall have free access to all records, books, and papers of any irrigation or water power company, shall have the right to go upon the right-of-way and land of any such company, shall inspect the work to see that it is being done according to plans and specifications approved by the department, and shall also keep a record of the cost of construction work when deemed advisable for physical valuation purposes. (2) The department may extend, for reasonable lengths of time, the time for completion of works, the application of water to a beneficial use, or any of the other requirements for completing or perfecting an application for flow or storage rights as fixed in the approval of an application or otherwise for the appropriation of water. Such extension may be granted upon a petition to the department and the showing of reasonable cause. The department shall cause a notice of each petition received to be published at the petitioner's expense in at least one newspaper of general circulation in the county or counties of the appropriation once a week for three consecutive weeks. The department shall hold a hearing on the issue of extension on its own motion or if requested by any interested person. If a hearing is held, notice shall be given by certified mail to the applicant, to any person who requested a hearing, and to any person who requests notification of the hearing. The department may grant the extension in the absence of a hearing if no requests for a hearing are received. Any

interested person may be made a party to such action. Any party affected by the decision on the petition may appeal directly to the Court of Appeals. Subsequent extensions may be made in the same manner.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 13, p. 838; C.S.1922, § 8432; C.S.1929, § 81-6313; R.S.1943, § 46-238; Laws 1957, c. 198, § 2, p. 698; Laws 1979, LB 545, § 1; Laws 1980, LB 649, § 1; Laws 1987, LB 140, § 8; Laws 1991, LB 278, § 1; Laws 1991, LB 732, § 107; Laws 2000, LB 900, § 113.

46-239
Repealed. Laws 1955, c. 183, s. 6.

46-240
Additional appropriation; conditions; application procedure.

Whenever any person shall desire to divert any of the unappropriated waters of any natural lake or reservoir, or any person shall desire to recover any unappropriated water intentionally stored underground, for irrigation or any other beneficial purpose, for which water has already been appropriated, but for which in times of scarcity no water can be obtained from the appropriation already made therefor, such person may make application therefor and proceed as in cases of original application for appropriation.

An application for recovery of water intentionally stored underground may be made only by an appropriator of record who shows, by documentary evidence, sufficient interest in the underground water storage facility to entitle the applicant to the water requested.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 28, p. 845; C.S.1922, § 8447; C.S.1929, § 81-6328; R.S.1943, § 46-240; Laws 1983, LB 198, § 8; Laws 1985, LB 488, § 4.

46-240.01
Supplemental additional appropriations; agricultural appropriators; application.

All appropriators of water for agricultural purposes of less than the statutory limit of direct flow from the public waters of this state within the drainage basin of the stream from which such waters originate shall be entitled to such additional appropriation or appropriations from the direct flow of such stream, within the statutory limits provided by law, as may be necessary and required for the production of crops in the practice of good husbandry. To accomplish such purpose, existing agricultural appropriators within the drainage basin having less than the statutory limit of direct flow shall, as a matter of right, be entitled upon application therefor to the approval and grant of such additional supplemental appropriation or appropriations from the direct flow of such stream as will not make the total appropriations, for the lands upon which such water is to be used, exceed the limits provided by law and as may be necessary and required for the production of crops upon such lands with the practice of good husbandry. Applications for such supplemental additional appropriations from the direct flow, upon the approval or granting thereof, shall have priority within the drainage basin as of the date such applications are filed in the office of the department.

Source:
Laws 1953, c. 160, § 1, p. 503; Laws 2000, LB 900, § 114.

46-241
Application for water; storage reservoirs; facility for underground water storage; eminent domain; procedure; duties and liabilities of owner.

(1) Every person intending to construct and operate a storage reservoir for irrigation or any other beneficial purpose or intending to construct and operate a facility for intentional underground water storage and recovery shall, except as provided in sections 46-243 and 46-257, make an application to the department upon the prescribed form. Such application shall be filed and proceedings had thereunder in the same manner and under the same rules and regulations as other applications. Upon the approval of such application, the applicant shall have the right to impound in such reservoir, or store in and recover from such underground water storage facility, all waters not otherwise appropriated and any appropriated water not needed for immediate use, to construct and operate necessary ditches for the purpose of conducting water to such storage reservoir or facility, and to condemn land for such reservoir, ditches, or other facility. The procedure to condemn property shall be exercised in the manner set forth in sections 76-704 to 76-724.

(2) The owner of a storage reservoir or facility shall be liable for all damages arising from leakage or overflow of the water therefrom or from the breaking of the embankment of such reservoir. The owner or possessor of a reservoir or intentional underground water storage facility shall not have the right to store water in such reservoir or facility during the time that such water is required in ditches for direct irrigation or for any reservoir or facility holding a senior right. Every person who owns, controls, or operates a reservoir or intentional underground water

storage facility, except political subdivisions of this state, shall be required to pass through the outlets of such reservoir or facility, whether presently existing or hereafter constructed, a portion of the measured inflows to furnish water for livestock in such amounts and at such times as directed by the department to meet the requirements for such purposes as determined by the department, except that a reservoir or facility owner shall not be required to release water for this purpose which has been legally stored. Any dam shall be constructed in accordance with section 46-257, and the outlet works shall be installed in such a manner that water may be released in compliance with this section. The requirement for outlet works may be waived by the department upon a showing of good cause. Whenever any person diverts water from a public stream and returns it into the same stream, he or she may take out the same amount of water, less a reasonable deduction for losses in transit, to be determined by the department, if no prior appropriator for beneficial use is prejudiced by such diversion.

(3) An application for storage and recovery of water intentionally stored underground may be made only by an appropriator of record who shows, by documentary evidence, sufficient interest in the underground water storage facility to entitle the applicant to the water requested.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 17, p. 852; C.S.1922, § 8467; C.S.1929, § 46-617; R.S.1943, § 46-241; Laws 1951, c. 101, § 91, p. 487; Laws 1955, c. 183, § 2, p. 515; Laws 1971, LB 823, § 1; Laws 1973, LB 186, § 8; Laws 1983, LB 198, § 9; Laws 1985, LB 103, § 2; Laws 1985, LB 488, § 5; Laws 1995, LB 309, § 1; Laws 2000, LB 900, § 115.

46-242
Use of stored water; permit; application; conditions; limitations; procedure.

(1) After the completion to the satisfaction of the department of a storage reservoir for which a permit has been obtained pursuant to section 46-241, any person proposing to apply to beneficial use the water stored shall file with the department an application for a permit particularly describing the use to which the water is to be applied and, if for irrigation, describing the land to be irrigated.

(2) Application may be made for a permit to appropriate water for the irrigation of land lying both upstream and downstream from a storage reservoir or intentional underground water storage facility. Under an approved application for a permit to appropriate water stored in a reservoir or facility for use on land upstream from such reservoir or facility, water may be diverted from the stream by the applicant and a compensating amount of water shall be released from the reservoir or facility for the use of downstream appropriators, but the rights of prior appropriators shall not be adversely affected by such exchange of water.

(3) The owner of a storage reservoir shall have a preferred right to make such application for a period of six months from the time limited for the completion of such reservoir. The date of the expiration of such period shall be endorsed upon the application when allowed. If an application is made by any other than such owner of a reservoir at any time, the same shall not be approved by the department until the applicant shows, by documentary evidence, sufficient interest in such storage reservoir to

entitle the applicant to enough water for the purpose set forth in the application.

(4) Application may be made for a permit to appropriate water from a storage reservoir, subject to subsection (3) of this section, or an intentional underground water storage facility, subject to subsection (3) of section 46-241, for instream use of water for recreation or fish and wildlife if the appropriation will not prejudice the rights of any prior appropriator for a beneficial use.

(5) An unapproved application for a permit pursuant to this section which is pending on August 26, 1983, may be amended to include use of stored water for intentional underground water storage.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 17, p. 852; C.S.1922, § 8467; C.S.1929, § 46-617; R.S.1943, § 46-242; Laws 1955, c. 183, § 3, p. 516; Laws 1965, c. 272, § 1, p. 774; Laws 1983, LB 198, § 10; Laws 1991, LB 277, § 1; Laws 2000, LB 900, § 116.

46-242.01
Repealed. Laws 1996, LB 890, s. 1.

46-242.02
Repealed. Laws 1996, LB 890, s. 1.

46-243
Application for water; reservoir intended for raising water level.

A reservoir constructed for the purpose of holding water back and raising it in order that it may be applied to lands of a higher level or given a greater head for power, shall not be considered a storage reservoir, but such reservoir together with the diverting or impounding dam, must be described in an application for flowing water

when water is to be raised, in order to perfect the appropriation.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 17, p. 853; C.S.1922, § 8467; C.S.1929, § 46-617.

46-244
Canals; declared works of internal improvement; laws applicable.

Canals and other works constructed for irrigation or water power purposes, or both, are hereby declared to be works of internal improvement; and all laws applicable to works of internal improvement are hereby declared to be applicable to such canal and irrigation works.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 1, p. 846; C.S.1922, § 8451; C.S.1929, § 46-601.

46-245
Irrigation canal, defined; laws applicable.

Any canal constructed for the purpose of developing water power, or any other useful purpose, and from which water can be taken for irrigation, is hereby declared to be an irrigation canal and all laws relating to irrigation canals shall be deemed applicable thereto.

Source:
Laws 1893, c. 40, § 2, p. 378; R.S.1913, § 3375; Laws 1919, c. 190, tit. VII, art. V, div. 1, § 7, p. 832; C.S.1922, § 8412; C.S.1929, § 46-507.

46-246
Ditches, dams, or similar works; construction; right of eminent domain.

All persons desirous of constructing a ditch, building a dam or dams for the purpose of storing water for irrigation, evaporation, and water power purposes, or conveying water to be applied to domestic, agricultural or any other beneficial use, or any dam, dike, reservoir, wasteway, subterranean gallery, filtering wells or other works for collecting, cleansing, filtering, retaining or storing water for any such use, or to enlarge any such ditch, conduit or waterworks, or to change the course thereof in any place, or to relocate the headgate or to change the point at which the water is to be taken into such canal or other waterworks, or to enlarge any ditch, canal or other works, or to construct any ditch, or to lay pipes or conduits for conveying or distributing water so collected or stored to the place of using the same, or to set, place or construct a wheel, pump, machine or apparatus for raising water out of any stream, lake, pond or well so that the same may flow or be conveyed to the place of using or storing the same, and who shall be unable to agree with the owner or claimant of any lands necessary to be taken for the site of any such works or any part thereof, touching the compensation and damages, shall be entitled to condemn the right-of-way over or through the lands of others, for any and all such purposes.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 2, p. 846; C.S.1922, § 8452; C.S.1929, § 46-602.

46-247
Ditches, dams, or similar works; construction; eminent domain; procedure.

In case of the refusal of the owner or claimant of any lands through which such ditch, canal, or other works are proposed to be made or constructed, to allow the passage thereof, the person desiring the right-of-way may acquire same through the exercise of the power of eminent domain. The procedure to condemn property shall be exercised in the manner set forth in sections 76-704 to 76-724.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 3, p. 847; C.S.1922, § 8453; C.S.1929, § 46-603; R.S.1943, § 46-247; Laws 1951, c. 101, § 92, p. 487.

46-248
Right-of-way for irrigation laterals; condemnation; procedure.

Whenever any person has acquired any rights to water for any lands owned by him, where, prior to the building of the laterals and the application of the water, any intervening canal, ditch, or lateral has been constructed, he shall have the right to construct laterals from such irrigation canal to the lands owned by him and to have such irrigation laterals across the lands and intervening canals to the land owned by him. If such intervening owner shall refuse to sell the right-of-way for such irrigation lateral, the owner shall have the right of eminent domain to condemn such right-of-way. The procedure to condemn property shall be exercised in the manner set forth in sections 76-704 to 76-724.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 4, p. 847; C.S.1922, § 8454; C.S.1929, § 46-604; R.S.1943, § 46-248; Laws 1951, c. 101, § 93, p. 488.

46-249
Irrigation works constructed by authority of United States; right-of-way over public lands; grant; school lands excepted.

There is hereby granted, over all the lands now or hereafter belonging to the State of Nebraska, except school lands held in trust by the Board of Educational Lands and Funds, a right-of-way for ditches, tunnels and telephone and transmission lines necessary to the construction and operation of any irrigation works constructed by authority of the United States; and in all conveyances such right-of-way shall be reserved.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 5, p. 847; C.S.1922, § 8455; C.S.1929, § 46-605; R.S.1943, § 46-249; Laws 1965, c. 273, § 1, p. 775.

46-250
Places of diversion; storage sites; changes; procedure.

The owner of any ditch, storage reservoir, storage capacity, or other device for appropriating water may, upon petition to the Department of Natural Resources, and upon its approval, change the point at which the water under any water appropriation of record is diverted from a natural stream or reservoir, change the line of any flume, ditch, or aqueduct, or change a storage site. No reclamation district or power appropriator may change the established return flow point without the approval of the department.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 6, p. 848; C.S.1922, § 8456; C.S.1929, § 46-606; Laws 1941, c. 91, § 1, p. 361; C.S.Supp.,1941, § 46-606; R.S.1943, § 46-250; Laws 1951, c. 150, § 1, p. 598; Laws 1953, c. 158, § 1, p. 496; Laws 2000, LB 900, § 117.

46-251
Irrigation works; use of state lands and highways; grant; right-of-way; condemnation.

All persons desirous of constructing any of the works provided for in sections 46-244 to 46-250 shall have the right to occupy state lands and obtain right-of-way over and across any highway in this state for such purpose without compensation, except public school lands. All bridges or crossings over such ditches, laterals and canals shall be constructed under the supervision of the Department of Roads, if on a state highway, and under the supervision of the county board or governing body of a municipality, if on a highway under the jurisdiction of such board or governing body. All such persons may obtain a right-of-way not to exceed sixteen feet in width, for a like purpose along, parallel to, and upon one side of any highway by condemnation proceedings where the same does not interfere with the proper drainage of such highway. In such cases the abutting landowner and the county may grant such right-of-way, or in case of their refusal notice shall be served upon them and proceedings had as in other cases. Not more than one such ditch or lateral shall be permitted along the side of the same highway.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 7, p. 848; C.S.1922, § 8457; C.S.1929, § 46-607; R.S.1943, § 46-251; Laws 1961, c. 227, § 2, p. 672.

46-252
Conducting of water into or along natural channels; withdrawal; permit, when required; liability.

(1) Any person may conduct, either from outside the state or from sources located in the state, quantities of water over and above those already present into or along any of the natural streams or channels of this state, for purposes of instream beneficial uses or withdrawal of some or all of such water for out-of-stream beneficial uses, at any point without regard to any prior appropriation of water from such stream, due allowance being made for losses in transit to be determined by the Department of Natural Resources. The department shall monitor movement of the water by measurements or other means and shall be responsible for assuring that such quantities are not subsequently diverted or withdrawn by others unless they are authorized to do so by the person conducting the water.

(2) Except as provided in subsections (3) and (4) of this section, before any person may conduct water into or along any of the natural streams or channels of the state, he or she shall first obtain a permit from the department. Application for the permit shall be made on forms provided by the department. Applications shall include plans and specifications detailing the intended times, amounts, and streamreach locations and such other information as required by the department. The water subject to such a permit shall be deemed appropriated for the use specified in the permit. Permitholders shall be liable for any damages resulting from the overflow of such stream or channel when water so conducted contributed to such overflow.

(3) Any person actually engaged in the construction or operation of any water power plant may, without filing

with the department and upon payment of all damages, use any such stream or channel for a tailrace or canal and may, whenever necessary, widen, deepen, or straighten the bed of any such stream. All damages resulting therefrom shall be determined in the manner set forth in sections 76-704 to 76-724.

(4) Any person holding a storage use permit pursuant to section 46-242 shall not be required to obtain the permit required by this section.

(5) Nothing in this section shall be construed to exempt a person from obtaining any other permits required by law.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 8, p. 848; C.S.1922, § 8458; C.S.1929, § 46-608; R.S.1943, § 46-252; Laws 1951, c. 101, § 94, p. 488; Laws 1955, c. 183, § 4, p. 516; Laws 1992, LB 49, § 1; Laws 2000, LB 900, § 118.

46-253
Ditches; changing line; flow maintained; liability.

No owner of any ditch or canal shall change the line of the ditch or canal so as to interfere with the use of water by anyone, who, prior to the proposed change, had used water for irrigation purposes from such ditch or canal, and the owner of such ditch or canal shall keep the same in good repair so as to permit the water to flow in a quantity sufficient to furnish the statutory amount to the lands entitled thereto at all reasonable times. The majority of the water users under any ditch may designate such reasonable time for the use of water as such majority may determine upon, upon a written notice signed by such majority to the persons in control of such ditch or canal. The owners, or those in control, may limit the flow of

water in the canal in accordance with such notice, between April 1 and May 1, and October 1 and November 15. No ditch shall be closed between May 1 and October 1. For a failure to cause the water to flow as aforesaid, the owners, or those in control, of any such ditch or canal shall be liable to anyone for any damage resulting from such failure, unavoidable accidents and shortage in the source of supply excepted.

Source:
Laws 1895, c. 69, § 46, p. 261; R.S.1913, § 3436; Laws 1915, c. 65, § 1, p. 164; Laws 1919, c. 190, tit. VII, art. V, div. 3, § 9, p. 849; C.S.1922, § 8459; Laws 1925, c. 132, § 1, p. 347; Laws 1927, c. 143, § 1, p. 387; C.S.1929, § 46-609; Laws 1937, c. 104, § 1, p. 363; C.S.Supp.,1941, § 46-609.

46-254
Interfering with waterworks; taking water without authority; penalty.

Any person owning or in control of any ditch, reservoir, or other device for appropriating or using water who willfully opens, closes, changes, or interferes with any headgate or controlling gate, or by any method or means takes any water from any natural stream, reservoir, or other source, through any ditch or canal to any land or lands, or allows the same to be done, or uses or allows to be used any water upon any land or lands, or for any other purpose whatsoever, without authority from the Department of Natural Resources, or who stores water in or releases water from a reservoir other than in compliance with orders of the Director of Natural Resources or his or her representative, shall be guilty of a Class II misdemeanor. Each day that the water is allowed to run without authority from the department shall constitute a separate offense.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 10, p. 849; C.S.1922, § 8460; C.S.1929, § 46-610; R.S.1943, § 46-254; Laws 1973, LB 186, § 9; Laws 1977, LB 40, § 257; Laws 2000, LB 900, § 119.

46-255
Ditches; construction through private property; bridges and gates.

Any person, constructing a ditch or canal through the lands of another, having no interest in such ditch or canal, shall build such ditch or canal in a substantial manner so as to prevent damage to such land. In all cases where necessary for the free and convenient use of lands on both sides of the ditch or canal by the owner or owners of such lands, the owner or those in control of such ditch shall erect substantial and convenient bridges across such canal or ditch, and they shall erect and keep in order suitable gates at the point of entrance and exit of such ditch through any enclosed field.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 11, p. 850; C.S.1922, § 8461; C.S.1929, § 46-611.

46-256
Persons controlling canals or reservoirs; headgates and measuring devices; failure to construct; construction by Department of Natural Resources.

Persons owning or controlling any ditch, canal, or reservoir for the purpose of storing or using water for any purpose shall, upon thirty days' notice by the Department of Natural Resources, construct and maintain at the point of diversion a substantial headgate, of a design approved by the department, so built that it may be closed, or partially closed and fastened at any stage with lock or

seal. They shall also construct a device for measuring and apportioning the water appropriated, which device shall be of a design approved by the department and built at the most practical point to be selected and fixed by it. If they neglect or refuse, for a period of ten days, to construct such headgate and measuring device, the department shall refuse to allow any water to be delivered to or used by or through any such ditch, canal, or reservoir or any other contrivance or device for appropriating, using, or storing water, and the department may construct bars, dams, or other obstructions to prevent such delivery or use.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 26, p. 844; C.S.1922, § 8445; C.S.1929, § 81-6326; R.S.1943, § 46-256; Laws 2000, LB 900, § 120.

46-257
Dam or lagoon construction; submit plans; low-hazard dams; exception; violation; penalties.

(1)(a) Except as provided in subsections (2) and (3) of this section, any person intending to construct a dam for any purpose, including, but not limited to, providing a reservoir for temporary or permanent storage of surface water, well water, human waste effluent, and mine tailings and sediments, shall submit plans, drawings, and specifications of the same to the Department of Natural Resources and at the same time submit an application to comply with section 46-241, when applicable, before beginning construction. No dam shall be constructed until the required plans, drawings, and specifications have been approved by the department.

(b) An applicant for a permit for a livestock waste control facility required by the Department of Environmental Quality in conjunction with the Department of

Natural Resources to obtain approval for any dam or lagoon under section 54-2412 shall submit plans, drawings, and specifications to the Department of Natural Resources and obtain approval before beginning construction. The Department of Natural Resources shall approve or deny the dam or lagoon within sixty days after the request is made.

(2) Any person intending to construct a low-hazard dam, as defined in the rules and regulations of the department, less than twenty-five feet high, measured from the natural bed of the stream or watercourse at the downstream toe of the dam to the top of the dam, with a water storage impounding capacity of less than fifteen acre-feet, measured below the crest of the lowest open outlet or overflow, and with a total storage capacity, including surcharge storage through any emergency spillway, below the top of the dam of less than fifty acre-feet, shall be exempt from subsection (1) of this section and also shall be exempt from subsection (1) of section 46-241 as long as there will be no diversion or withdrawal of water from the reservoir.

(3) Any person intending to construct on a dry watercourse a low-hazard dam, as defined in the rules and regulations of the department, less than twenty-five feet high, measured from the natural bed of the stream or watercourse at the downstream toe of the dam to the top of the dam, for the sole purpose of holding, managing, or disposing of animal or human waste shall be exempt from subsection (1) of this section and also shall be exempt from subsection (1) of section 46-241 if surface water runoff, except incidental runoff from the upstream area, is adequately diverted around the structure and is not permitted to enter the reservoir area and if the total storage capacity

below the top of the dam is less than fifty acre-feet. For purposes of this section, incidental runoff means the runoff that drains from the slope of the embankments, the top of the dam, the reservoir area, the feedlots, the associated roadways, and up to twenty-five acres of additional area that cannot be diverted. Incidental runoff capacity from a twenty-five-year frequency, twenty-four-hour storm must be provided for in the waste reservoir in addition to the capacity required for the waste effluent or stored materials.

(4) Subsections (2) and (3) of this section do not waive any requirements of the Department of Environmental Quality.

(5) Whenever the Director of Natural Resources determines that a dam or lagoon has been constructed in violation of subsection (1) of this section, he or she may order the immediate removal of such dam or lagoon and if necessary may institute legal proceedings to obtain compliance with such order.

(6) Any person constructing a dam or lagoon without having complied with subsection (1) of this section shall be guilty of a Class V misdemeanor, and every day such dam or lagoon is maintained shall be considered a separate offense.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 2, § 27, p. 845; C.S.1922, § 8446; C.S.1929, § 81-6327; Laws 1941, c. 182, § 1, p. 713; C.S.Supp.,1941, § 81-6327; R.S.1943, § 46-257; Laws 1961, c. 228, § 1, p. 675; Laws 1971, LB 823, § 2; Laws 1973, LB 186, § 10; Laws 1977, LB 40, § 258; Laws 1979, LB 45, § 1; Laws 1985, LB 103, § 3; Laws 1995, LB

309, § 2; Laws 1998, LB 1209, § 16; Laws 2000, LB 900, § 121.

46-258
Ditches; maintenance; outlets; headgates; duties of owner.

Any owner or person in control of any ditch for irrigation purposes shall have the ditch in order to receive water from the source of supply on or before April 15 of each year, shall construct necessary outlets in the banks for the delivery of water to all persons who are entitled to the same, and shall maintain a substantial headgate and measuring box or weir at the head of each lateral, which shall be constructed in accordance with plans and specifications approved by the Department of Natural Resources. A multiplicity of outlets shall be avoided. The outlet shall be at the most convenient and practicable point consistent with the protection and safety of the ditch and the efficient distribution of water among the various claimants thereof.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 12, p. 850; C.S.1922, § 8462; C.S.1929, § 46-612; R.S.1943, § 46-258; Laws 2000, LB 900, § 122.

46-259
Running water in rivers and ravines; right to use.

The right to the use of running water flowing in any river or stream or down any canyon or ravine may be acquired by appropriation by any person.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 13, p. 850; C.S.1922, § 8463; C.S.1929, § 46-613.

46-260
Repealed. Laws 1987, LB 140, s. 15.

46-261
Lands to be irrigated; appropriations transferred; information filed with Department of Natural Resources; recording gauges; failure to install; effect.

(1) The Department of Natural Resources may require an appropriator or his or her agent to furnish the department, by April 1 in any year, a list of all lands to be irrigated, the acreage of each tract, and the names of the owners, controllers, or officers for every ditch, reservoir, or other device for appropriating, diverting, carrying, or distributing water to be used as a basis for the distribution of water until April 1 of the following year, and if so ordered such a list shall be furnished by the appropriator or his or her agent to the department.

(2) By April 1, any district or company which has transferred an appropriation pursuant to sections 46-2,127 to 46-2,129 in the previous calendar year shall provide the department:

(a) A legal description and map of the tracts of land receiving and transferring an appropriation of water, or portion thereof, within the district or company;

(b) The water appropriation permit number under sections 46-233 to 46-235 and the priority date of the water appropriation;

(c) A statement on whether objections were filed, whether a hearing was held, and how consent was given;

(d) The effective date of the transfer of the appropriation; and

(e) A statement summarizing the water use on the receiving and transferring tracts of land.

(3) The department may require the owner or controller of any canal or ditch to install an approved recording gauge at one or more specific locations to record the amount of water used. The department shall not furnish any water to be delivered to or used by or through any ditch, reservoir, or other contrivance for the appropriation, use, or storage of water until this section has been complied with. The department may construct bars or dams to prevent such delivery or use.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 15, p. 851; C.S.1922, § 8465; C.S.1929, § 46-615; R.S.1943, § 46-261; Laws 1979, LB 245, § 1; Laws 1981, LB 114, § 1; Laws 1995, LB 94, § 1; Laws 1995, LB 99, § 16; Laws 2000, LB 900, § 123.

46-262
Duties of persons taking water; noncompliance; liability.

No person shall accept more water from any ditch, canal or reservoir than he is justly entitled to. On finding that he is receiving more water either through his headgates or by means of leaks, or by any other means, than he is entitled to receive he shall immediately take steps to prevent the same. If he knowingly permits such excess water to come upon his land, and fails to promptly notify the owner of such ditch, canal or reservoir, he shall be liable in damages to any person who shall be injured thereby.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 16, p. 851; C.S.1922, § 8466; C.S.1929, § 46-616.

46-263
Water; neglecting and preventing delivery; penalty.

Any person having charge of a ditch or canal used for irrigation purposes, who shall neglect or refuse to deliver water as herein provided, or any person or persons who shall prevent or interfere with the proper delivery of water to the person or persons having the right thereto, shall be guilty of a Class III misdemeanor.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 18, p. 853; C.S.1922, § 8468; C.S.1929, § 46-618; R.S.1943, § 46-263; Laws 1977, LB 40, § 259; Laws 1987, LB 140, § 9.

46-263.01
Water; molesting or damaging measuring device; penalty.

Any person, or persons, who shall molest, tamper with, break into or damage in any way any device used for the measuring and recording of the water flowing in any stream, canal or reservoir in this state shall be guilty of a Class II misdemeanor.

Source:
Laws 1947, c. 172, § 3, p. 522; Laws 1969, c. 385, § 1, p. 1353; Laws 1977, LB 40, § 260.

46-263.02
Water; molesting or damaging measuring device; apprehension and conviction; reward.

The Department of Natural Resources is hereby authorized and empowered to offer and pay out of the fees collected by the department rewards of not to exceed twenty-five dollars in any case for the apprehension and conviction of any person or persons violating the provisions of section 46-263.01.

Source:
Laws 1947, c. 172, § 4, p. 522; Laws 2000, LB 900, § 124.

46-264
Repealed. Laws 1973, LB 88, s. 1.

46-265
Embankments; maintenance; return of unused water; duties of owner.

The owner or owners of any irrigation ditch or canal shall carefully maintain the embankments thereof so as to prevent waste therefrom, and shall return the unused water from such ditch or canal with as little waste thereof as possible to the stream from which such water was taken, or to the Missouri River.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 20, p. 854; C.S.1922, § 8470; C.S.1929, § 46-620.

46-266
Irrigation water; overflow on roads; duty of owner to prevent; violation; penalty.

No owner of any water power or irrigation ditch, canal or lateral shall so construct, maintain or operate the same as to permit any water to escape therefrom upon any public road or highway. No person in the application of water in the irrigation of lands shall permit the same to escape from such lands and to flow upon any public road or highway. Any person violating any of the provisions of this section shall be guilty of a Class V misdemeanor. Each day water is permitted to flow or escape upon any public road or highway in violation of the foregoing prohibitions shall be deemed a separate and distinct offense. The overseer of highways or other officer in charge of road work in the area in which a violation occurs shall make

complaint therefor, but no other person shall be precluded from making complaint.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 21, p. 854; C.S.1922, § 8471; C.S.1929, § 46-621; R.S.1943, § 46-266; Laws 1959, c. 181, § 14, p. 660; Laws 1977, LB 40, § 261.

46-267
Repealed. Laws 2001, LB 170, s. 30; Laws 2001, LB 173, s. 22.

46-268
Contract for use of water; record; rights of grantee unimpaired by foreclosure of liens.

Whenever any person, association or corporation owning any irrigation ditch or canal enters into a contract with a landowner to carry water to any tract of land having a water appropriation, such carriage contract shall be recorded in the county where such land is situated in the same manner and under the same conditions as deeds for real estate. Such contract, from the date of the recording thereof, shall be binding upon the grantor, his, their or its successors or assigns, and all persons claiming any interest in such ditch or canal. No foreclosure or other proceedings to subject the property of the owner of such ditch or canal to the satisfaction of any lien or claim shall in any manner impair the right of such grantee, his heirs, administrators or assigns, to the use of the water from such ditch or canal in the quantity and manner provided in his deed or contract.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 23, p. 855; C.S.1922, § 8473; C.S.1929, § 46-623; R.S.1943, § 46-268; Laws 1947, c. 172, § 2, p. 522.

46-269
Mutual irrigation companies; recognized; bylaws; when lawful.

Any corporation or association organized under the laws of this state for the purpose of constructing and operating canals, reservoirs, and other works for irrigation purposes, and deriving no revenue from their operation, shall be termed a mutual irrigation company, and any bylaws adopted by such company, not in conflict herewith, shall be deemed lawful and so recognized by the courts of this state; PROVIDED, such bylaws do not impair the rights of one shareholder over another.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 24, p. 855; C.S.1922, § 8474; C.S.1929, § 46-624.

46-270
Irrigation projects; how financed.

Any corporation or association organized under the law of this state for the purpose of constructing and operating canals, reservoirs, and other works for irrigation and water power purposes shall have power to borrow money, to issue bonds, and to mortgage its property and franchises in the same manner as railroad corporations.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 25, p. 855; Laws 1921, c. 271, § 1, p. 900; C.S.1922, § 8475; C.S.1929, § 46-625; R.S.1943, § 46-270; Laws 2000, LB 900, § 125; Laws 2001, LB 420, § 31.

46-271
Corporations or associations; construction or operation of canals or reservoirs; assessments of stock; when authorized; how enforced.

Any corporation or association organized under the laws of this state for the purpose of constructing or operating canals, reservoirs or other works for irrigation purposes may, through its board of directors or trustees, assess the shares, stock, or interest of the stockholders thereof for the purpose of obtaining funds to defray the necessary running expenses. Any assessments levied under this section shall become and be a lien upon the stock or interest so assessed. Such assessments shall, if not paid, become delinquent at the expiration of sixty days, and the stock or interest may be sold at public sale to satisfy such lien. Notice of such sale shall be published for three consecutive weeks prior thereto, in some newspaper published and of general circulation in the county where the office of the company is located. Upon the date mentioned in the advertisement, or upon the date to which the sale may have been adjourned, such stock or interest, or so much thereof as may be necessary to satisfy such lien and costs, shall be sold to the highest bidder for cash.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 26, p. 855; C.S.1922, § 8476; C.S.1929, § 46-626; R.S.1943, § 46-271; Laws 1996, LB 299, § 23.

46-272
Water users' associations organized under reclamation act of the United States; stock subscriptions; how recorded; fees.

The county clerk is hereby authorized to accept from water users' associations, organized in conformity with the

requirements of the United States under the reclamation act, books containing printed copies of their articles of incorporation and forms of subscription to stock, and to use such books for recording the stock subscriptions of such associations. The charges for the recording thereof shall be made on the basis of the number of words actually written therein.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 29, p. 857; C.S.1922, § 8479; C.S.1929, § 46-629.

46-273
Water; United States may furnish to individuals; conditions and requirements.

The United States of America is hereby authorized, in conformity to the laws of the State of Nebraska, to appropriate, develop, and store any unappropriated flood or unused waters, in connection with any project constructed by the United States pursuant to the provisions of an Act of Congress approved June 17, 1902, being An Act providing for the reclamation of arid lands (32 Stat. L. 388), and all acts amendatory thereof and supplemental thereto. When the officers of the United States Bureau of Reclamation determine that any water so developed or stored is in excess of the needs of the project as then completed or is flood or unused water, the United States may contract to furnish such developed, stored, flood, or unused water, under the terms and conditions imposed by Act of Congress and the rules and regulations of the United States, to any person who may have theretofore been granted a permit to appropriate a portion of the normal flow of any stream, if the water so appropriated shall, during some portion of the year, be found insufficient for the needs of the land to which it is appurtenant. The United States and

every person entering into a contract as herein provided shall have the right to conduct such water into and along any of the natural streams of the state, but not so as to raise the waters thereof above the ordinary high water mark, and may take out the same again at any point desired, without regard to the prior rights of others to water from the same stream; but due allowance shall be made for losses in transit, the amount of such allowance to be determined by the Department of Natural Resources. The department shall supervise and enforce the distribution of such water so delivered with like authority and under the same provisions as in the case of general appropriators.

Source:
Laws 1919, c. 190, tit. VII, art. V, div. 3, § 28, p. 856; C.S.1922, § 8478; C.S.1929, § 46-828; R.S.1943, § 46-273; Laws 1955, c. 183, § 5, p. 517; Laws 1987, LB 140, § 10; Laws 2000, LB 900, § 126.

46-274
Repealed. Laws 1963, c. 425, art. VIII, s. 2.

46-275
Repealed. Laws 1963, c. 425, art. VIII, s. 2.

46-276
Repealed. Laws 1963, c. 425, art. VIII, s. 2.

46-277
Dams; inspection; notice to repair; completion; powers and duties of Department of Natural Resources; powers and duties of Director of Natural Resources.

The owner or operator of any dam and appurtenant works which has or will have a storage capacity of fifty acre-feet or more below the top of the dam, including surcharge storage through any emergency spillway, or will be twenty-five feet in height or more, measured from the

natural bed of the stream or watercourse at the downstream toe of the dam to the top of the dam and is constructed for impounding or diversion of water or the containment of waste effluent, sediments, or other materials, shall keep such dam and appurtenant works in a state of repair to be approved by the Department of Natural Resources. The Director of Natural Resources shall determine the safety inspection requirements, frequency of inspections, and reporting details on the inspections of the dams based on the hazard classification and actual conditions of each dam. The owner or operator shall provide the department access to such dams at all reasonable times. When an inspection reveals a structure in an unsafe condition, the director shall give notice to the owner to place such dam and appurtenant works in such state of repair as will meet the approval of the director. The repair shall be completed in not more than ninety days or such reasonable time as may be determined by the director. Such notice shall be in writing and shall be served in the same manner as court summonses are served.

Source:
Laws 1931, c. 45, § 1, p. 143; C.S.Supp.,1941, § 81-6332; R.S.1943, § 46-277; Laws 1973, LB 186, § 11; Laws 1979, LB 544, § 1; Laws 1995, LB 309, § 3; Laws 2000, LB 900, § 127.

46-278
Dams; failure to repair; penalty.

Any owner or owners of such dam who neglect or refuse to repair such dam within three months after receiving written notice from the Director of Natural Resources so to do, shall be guilty of a Class V misdemeanor, and every day that such owner or owners neglect or refuse to repair such dam after the expiration of three

months from date of receiving notice so to do shall be considered a separate offense.

Source:
Laws 1931, c. 45, § 2, p. 143; C.S.Supp.,1941, § 81-6333; R.S.1943, § 46-278; Laws 1977, LB 40, § 262; Laws 2000, LB 900, § 128.

46-279
Repealed. Laws 1987, LB 140, s. 15.

46-280
Repealed. Laws 1987, LB 140, s. 15.

46-281
Artesian water; waste prohibited.

It shall be unlawful for any owner or owners, lessee or lessees, occupier or occupiers, foreman or superintendent of any farm, town lot or other real estate in the State of Nebraska, where artesian water has been found or may be found hereafter, to allow the water from wells or other borings or drillings on any farm, town lot, or other real estate in Nebraska to flow out and run to waste in any manner to exceed what will flow or run through a pipe one-half of one inch in diameter, except where the water is first used for irrigation, or to create power for milling or other mechanical purposes.

Source:
Laws 1897, c. 84, § 1, p. 358; R.S.1913, § 3527; C.S.1922, § 2927; C.S.1929, § 46-172.

46-282
Artesian water; waste; penalty.

Any person or persons who own, occupy or have control of any farm, town lot or other real estate in the State of Nebraska, who fail or refuse to close or shut off any wastage of artesian water to the amount that section

46-281 allows on any farm, town lot or other real estate which they own, occupy or have control of, after being notified in writing by any person having the benefit of such mutual artesian water supply, within forty-eight hours after such notification, shall be subject to arrest, and shall be guilty of a Class V misdemeanor; and if such wastage be not abated within twenty-four hours after such arrest and conviction, it shall be a second offense against the provisions of section 46-281 and be subject to the same fine as for the first offense. Every like offense or neglect of each twenty-four hours thereafter shall be considered an additional offense against the provisions of section 46-281.

Source:
Laws 1897, c. 84, § 2, p. 358; R.S.1913, § 3528; C.S.1922, § 2928; C.S.1929, § 46-173; R.S.1943, § 46-282; Laws 1977, LB 40, § 264.

46-283
Legislative findings.

The Legislature hereby finds and declares that the practice of reusing ground water from irrigation water reuse pits on irrigated land contributes to the efficient use and conservation of the state's water resources and that such reuse may be more feasible when done from irrigation water reuse pits located within natural streams.

Source:
Laws 1980, LB 908, § 1.

46-284
Definitions, sections found.

For purposes of sections 46-283 to 46-287, unless the context otherwise requires, the definitions found in sections 46-285 and 46-286 shall be used.

Source:
Laws 1980, LB 908, § 2.

46-285
Irrigation water reuse pit, defined.

Irrigation water reuse pit shall mean an excavation constructed to capture, for reuse, runoff resulting from ground water irrigation or a structure designed for the purpose of water impoundment which is used for this same purpose so long as the capacity of the facility does not exceed fifteen acre-feet.

Source:
Laws 1980, LB 908, § 3.

46-286
Headwater segment of a natural stream, defined.

Headwater segment of a natural stream shall mean that portion of a natural stream near its origin which exhibits a natural configuration in the land surface and serves to concentrate and give direction to overland flow. Such portion of a natural stream shall have a flow of such intermittent occurrence as to afford usage by normal tillage or grazing practices.

Source:
Laws 1980, LB 908, § 4.

46-287
Irrigation water reuse pit; reusing ground water; exempt from certain provisions.

Notwithstanding any other provision of law, any person intending to or in the process of reusing ground water from an irrigation water reuse pit located within a headwater segment of a natural stream shall be exempt from the provisions of Chapter 46, article 2, which would

otherwise apply to such pits, and from the provisions of section 46-637.

Source:
Laws 1980, LB 908, § 5.

46-288
Interbasin transfers; terms, defined.

For purposes of this section and section 46-289, unless the context otherwise requires:

(1) Basin of origin shall mean the river basin in which the point or proposed point of diversion of water is located;

(2) Beneficial use shall include, but not be limited to, reasonable and efficient use of water for domestic, municipal, agricultural, industrial, commercial, power production, subirrigation, fish and wildlife, ground water recharge, interstate compact, water quality maintenance, or recreational purposes. Nothing in this subdivision shall be construed to affect the preferences for use of surface water as provided in section 46-204;

(3) Interbasin transfer shall mean the diversion of water in one river basin and the transportation of such water to another river basin for storage or utilization for a beneficial use; and

(4) River basin shall mean any of the following natural hydrologic basins of the state as shown on maps located in the Department of Natural Resources: (a) The White River and Hat Creek basin; (b) the Niobrara River basin; (c) the Platte River basin, including the North Platte and South Platte River basins, except that for purposes of transfer between the North and South Platte River basins each shall be considered a separate river basin; (d) the Loup River

basin; (e) the Elkhorn River basin; (f) the Republican River basin; (g) the Little Blue River basin; (h) the Big Blue River basin; (i) the Nemaha River basin; and (j) the Missouri tributaries basin.

Source:
Laws 1981, LB 252, § 5; Laws 1993, LB 789, § 3; Laws 2000, LB 900, § 129.

46-289
Legislative findings; interbasin transfers; application for water; factors considered; order issued.

The Legislature finds, recognizes, and declares that the transfer of water to outside the boundaries of a river basin may have impacts on the water and other resources in the basin and that such impacts differ from those caused by uses of water within the same basin in part because any unused water will not be returned to the stream from which it is taken for further use in that river basin. The Legislature therefor recognizes the need to delineate factors for consideration by the Director of Natural Resources when evaluating an application made pursuant to section 46-233 which involves an interbasin transfer of water in order to determine whether denial of such application is demanded by the public interest. Those considerations shall include, but not be limited to, the following factors:

(1) The economic, environmental, and other benefits of the proposed interbasin transfer and use;

(2) Any adverse impacts of the proposed interbasin transfer and use;

(3) Any current beneficial uses being made of the unappropriated water in the basin of origin;

(4) Any reasonably foreseeable future beneficial uses of the water in the basin of origin;

(5) The economic, environmental, and other benefits of leaving the water in the basin of origin for current or future beneficial uses;

(6) Alternative sources of water supply available to the applicant; and

(7) Alternative sources of water available to the basin of origin for future beneficial uses.

The application shall be deemed in the public interest if the overall benefits to the state and the applicant's basin are greater than or equal to the adverse impacts to the state and the basin of origin. The director's order granting or denying an application shall specify the reasons for such action, including a discussion of the required factors for consideration, and shall document such decision by reference to the hearing record, if any, and to any other sources used by the director in making the decision.

Source:
Laws 1981, LB 252, § 6; Laws 1986, LB 309, § 2; Laws 2000, LB 900, § 130.

46-290
Water appropriation; intrabasin transfer; application for approval.

Except as provided in sections 46-2,120 to 46-2,130, any person having a permit to appropriate water for beneficial purposes issued pursuant to Chapter 46 who desires to transfer the use of such water appropriation to a different location within the same river basin than that specified in the permit shall apply for approval of such change to the Department of Natural Resources.

Source:
Laws 1983, LB 21, § 2; Laws 1995, LB 99, § 17; Laws 2000, LB 900, § 131.

46-291
Application for transfer; notice; contents.

Upon receipt of an application filed under section 46-290, the Director of Natural Resources shall cause a notice of such application to be published at the applicant's expense at least once a week for three weeks in at least one newspaper of general circulation in each county containing lands on which the water appropriation is or is proposed to be located and a newspaper of general circulation in Nebraska. Such notice shall be published at least once a week for three consecutive weeks and shall contain a description of the water appropriation, the number assigned such permit in the records of the Department of Natural Resources, the date of priority, a description of the lands to which such water appropriation is proposed to be applied, and any other relevant information.

The notice shall state that any person may in writing object to and request a hearing on the application at any time prior to the elapse of two weeks from the date of final publication.

Source:
Laws 1983, LB 21, § 3; Laws 2000, LB 900, § 132.

46-292
Application for transfer; hearing.

The Department of Natural Resources may hold a hearing on an application filed under section 46-290 on its own motion and shall hold a hearing if requested by any person.

Source:
Laws 1983, LB 21, § 4; Laws 2000, LB 900, § 133.

46-293
Hearing; how conducted.

Any hearing held pursuant to section 46-292 shall be conducted in accordance with sections 61-206 and 61-207.

Source:
Laws 1983, LB 21, § 5; Laws 2000, LB 900, § 134.

46-294
Application for transfer; approval; conditions; burden of proof.

(1) The Director of Natural Resources shall approve an application filed pursuant to section 46-290 if:

(a) The requested change of location is within the same river basin, will not adversely affect any other water appropriator, and will not significantly adversely affect any riparian water user who files an objection in writing prior to the hearing;

(b) The requested change will use water from the same source of supply as the current use;

(c) The change of location will not diminish the supply of water otherwise available;

(d) The water will be applied to a use in the same preference category as the current use, as provided in section 46-204; and

(e) The requested change is in the public interest.

The applicant has the burden of proving that the change of location will comply with subdivisions (a) through (e) of this subsection, except that the burden is on

the riparian user to demonstrate his or her riparian status and to demonstrate a significant adverse effect on his or her use in order to prevent approval of an application.

(2) In approving an application, the director may impose any reasonable conditions deemed necessary to protect the public interest. An approved change of location shall retain the same priority date as that of the original water right. In approving an application, the director may (a) authorize a greater number of acres to be irrigated if the amount and rate of water approved under the original appropriation is not increased by the change of location or (b) authorize the overlying of water appropriations on the same lands as long as the limits provided in section 46-231 are not exceeded.

Source:
Laws 1983, LB 21, § 6; Laws 1984, LB 818, § 2; Laws 1993, LB 789, § 4; Laws 2000, LB 900, § 135.

46-295
Legislative findings.

The Legislature recognizes that, as a result of water project operations, surface water in some areas of the state has been, is, and will be in the future intentionally and incidentally stored in and withdrawn from underground strata. The Legislature acknowledges that rights to water intentionally or incidentally stored underground and rights to withdrawal of such water should be formally recognized and quantified and recognizes the propriety of all beneficiaries proportionately sharing, to the extent of potential benefit from intentional underground water storage, in the financial obligations necessary for construction, operation, and maintenance of water projects which cause intentional underground water storage.

The Legislature finds that uses of water for incidental and intentional underground water storage are beneficial uses of water which contribute to the recharge of Nebraska's aquifers and that comprehensive, conjunctive management of surface water and intentional or incidental underground water storage is essential for the continued economic prosperity and well-being of the state, serves the public interest by providing an element of certainty essential for investment in water resources development, and will improve Nebraska's standing in the event of interstate dispute.

To facilitate optimum beneficial use of water by the people of Nebraska, the Legislature recognizes the need for authorizing the recognition of incidental underground water storage, for authorizing intentional underground water storage, and for authorizing the levying and collection of fees and assessments on persons who withdraw or otherwise use or benefit from intentional underground water storage as provided in sections 46-299 to 46-2,106.

Nothing in sections 46-202, 46-226.01, 46-226.02, 46-233, 46-240, 46-241, 46-242, 46-295 to 46-2,106, 46-544, and 46-656.23 shall be construed to alter existing statutes regarding the relationship between naturally occurring surface and ground water.

Source:
Laws 1983, LB 198, § 1; Laws 1985, LB 488, § 6; Laws 1989, LB 45, § 2; Laws 1996, LB 108, § 4; Laws 2000, LB 900, § 136.

46-296
Terms, defined.

As used in sections 33-105, 46-202, and 46-295 to 46-2,106, unless the context otherwise requires:

(1) Department means the Department of Natural Resources;

(2) Director means the Director of Natural Resources;

(3) Person means a natural person, partnership, limited liability company, association, corporation, municipality, or agency or political subdivision of the state or of the federal government;

(4) Underground water storage means the act of storing or recharging water in underground strata. Such water shall be known as water stored underground but does not include ground water as defined in section 46-656.07 which occurs naturally;

(5) Intentional underground water storage means underground water storage which is an intended purpose or result of a water project or use. Such storage may be accomplished by any lawful means such as injection wells, infiltration basins, canals, reservoirs, and other reasonable methods; and

(6) Incidental underground water storage means underground water storage which occurs as an indirect result, rather than an intended or planned purpose, of a water project or use and includes, but is not limited to, seepage from reservoirs, canals, and laterals, and deep percolation from irrigated lands.

Source:
Laws 1983, LB 198, § 2; Laws 1985, LB 488, § 7; Laws 1993, LB 121, § 277; Laws 1996, LB 108, § 5; Laws 2000, LB 900, § 137.

46-297
Permit to appropriate water; modification to include underground water storage; procedure.

Any person who has an approved, unperfected appropriation pursuant to Chapter 46, article 2, may apply to the department for a modification of such permit to include intentional underground water storage associated with the appropriation. The application shall be made on a form prescribed and furnished by the department without cost to the applicant. If the applicant is an individual, the application for a permit shall include the applicant's social security number. Upon receipt of such an application, the department shall proceed in accordance with rules and regulations adopted and promulgated by the department, subject to section 46-226.02.

Source:
Laws 1983, LB 198, § 11; Laws 1997, LB 752, § 120.

46-298
Repealed. Laws 1989, LB 45, s. 6.

46-299
Permittee; authorized to levy a fee or assessment; limitation.

Any person who has obtained a permit for intentional underground water storage associated with a project not existing on August 26, 1983, and recovery of such water, pursuant to section 46-233, 46-240, 46-241, 46-242 or 46-297 may, subject to section 46-2,101, levy a fee or assessment against any person for the right or probable right to withdraw or otherwise use such stored water. Such fee or assessment may be levied against any land in connection with which such underground water storage has occurred or probably will occur, and may be varied based on the degree to which underground water storage has occurred

or will occur. No fee or assessment shall represent more than the fair market value of such recharge, except that a fee or assessment may include a sum sufficient to amortize the operation, maintenance, repair, and capital costs of the project, apportioned on the degree to which recharge has occurred or is likely to occur, and on the degree to which any surface water is delivered.

Source:
Laws 1983, LB 198, § 13.

46-2,100
Fee or assessment; limitation.

No fee or assessment may be levied pursuant to section 46-299 for withdrawals from wells with a capacity of less than one hundred gallons per minute which are solely for domestic purposes as defined in section 46-613.

Source:
Laws 1983, LB 198, § 14; Laws 1989, LB 45, § 3.

46-2,101
Fee or assessment; application for approval; contents; fee schedule.

(1) Any person intending to levy fees or assessments in accordance with section 46-299 or to modify such fees or assessments shall, prior to levying such fees, assessments, modified fees, or modified assessments, file with the department an application for approval of authority to levy such fees on a form prescribed and furnished by the department.

(2) Such an application shall include a fee schedule and the following information:

(a) The source of the water stored or to be stored underground;

(b) The underground water storage method;

(c) The relative amounts of water stored or to be stored underground and naturally occurring ground water;

(d) The data or reference studies used by the applicant to determine the underground water storage;

(e) A description of the areas served or to be served by the water stored underground;

(f) The amount of surface water, if any, for which the applicant has an appropriation; and

(g) The manner, use, and location of any such surface water appropriation.

The application shall be processed under the applicable rules and regulations of the department adopted and promulgated pursuant to section 61-206.

(3) An application shall be approved if the fees, assessments, modified fees, or modified assessments appear reasonable and comply with the requirements of section 46-299.

(4) The department shall review approved fee schedules every five years after approval to determine whether the fees should be increased, decreased, or eliminated, except that if the adopted schedules have been pledged to repayment of financing for the project, the department shall only review after repayment is completed.

Source:
Laws 1983, LB 198, § 15; Laws 1985, LB 488, § 9; Laws 1989, LB 45, § 4; Laws 2000, LB 900, § 138.

46-2,102
Fee or assessment; lien.

A fee or assessment levied pursuant to section 46-299 shall become a lien on the property benefited, or to be benefited, thirty days after the due date of such fee or assessment. The person levying the fee or assessment may collect such fee or assessment if it remains unpaid after thirty days after the due date by commencing an action in district court against the owner of the land benefited or to be benefited to foreclose the lien or to recover the amount due, except that no lien shall become effective until notice thereof is filed with the register of deeds in the county in which the benefited property is located and such lien shall relate back only to the date of filing.

Source:
Laws 1983, LB 198, § 16; Laws 1989, LB 45, § 5.

46-2,103
Injunction; when issued.

Any person who has obtained approval of fees or assessments pursuant to section 46-2,101, may commence an action to enjoin any person from withdrawing or otherwise using the stored water if the person has not entered into an agreement to pay fees or assessments for such stored water, or has failed and refused to pay a fee or assessment for a period of thirty days from and after the due date of the fee or assessment. No injunction may be obtained against withdrawals from wells with a capacity of less than one hundred gallons per minute which are solely for domestic uses as defined in section 46-613.

Source:
Laws 1983, LB 198, § 17.

46-2,104
Director's order; not subject to collateral attack.

If an action is commenced pursuant to section 46-2,102 or 46-2,103, an order of the director identifying water stored or to be stored underground, or approving fees or assessments, may not be collaterally attacked.

Source:
Laws 1983, LB 198, § 18.

46-2,105
Appeal.

Any person aggrieved by a decision made or an order issued by the director pursuant to section 46-226.02, 46-233, 46-240, 46-241, 46-242, 46-297, or 46-2,101 may appeal as provided in section 61-207.

Source:
Laws 1983, LB 198, § 19; Laws 2000, LB 900, § 139.

46-2,106
Use of underground stored water; authorized.

Any person may use water stored incidentally or intentionally underground for which the appropriate permits have not been obtained or for which approval of fees has not been obtained pursuant to section 46-2,101.

Source:
Laws 1983, LB 198, § 20.

46-2,107
Legislative findings.

The Legislature finds that the maintenance, conservation, management, storage, and timely release of the waters of the natural streams within the State of Nebraska are in the public interest and are practices essential to the well-being of present and future generations. In

furtherance of these practices, the public interest demands the recognition of instream uses for fish, recreation, and wildlife. The Legislature also finds that proposals for future water development should fully consider multiple uses, including instream flows whether from natural flow or from reservoir releases, and recognizes the positive impact of impoundments which can provide significant instream flow benefits.

Source:
Laws 1984, LB 1106, § 23.

46-2,108
Appropriation of water for instream flows; terms, defined.

(1) For purposes of sections 46-2,107 to 46-2,119, unless the context otherwise requires:

(a) Department means the Department of Natural Resources;

(b) Director means the Director of Natural Resources; and

(c) Instream appropriation means the undiverted application of the waters of a natural stream within or bordering upon the state for recreation or fish and wildlife purposes.

(2) An instream appropriation may be obtained only by the Game and Parks Commission or a natural resources district and only for that amount of water necessary for recreation or fish and wildlife. The instream use of water for recreation or fish and wildlife shall be considered a beneficial use of water.

Source:
Laws 1984, LB 1106, § 24; Laws 1985, LB 102, § 13; Laws 1997, LB 877, § 1; Laws 2000, LB 900, § 140.

46-2,109
Streams with need for instream flows; identification; study.

Each natural resources district and the Game and Parks Commission shall conduct studies to identify specific stream segments which the district or commission considers to have a critical need for instream flows. Such studies shall quantify the instream flow needs in the identified stream segments. Any district or the Game and Parks Commission may request the assistance of the Conservation and Survey Division of the University of Nebraska, the Game and Parks Commission, the Department of Environmental Quality, the Department of Natural Resources, or any other state agency in order to comply with this section.

Source:
Laws 1984, LB 1106, § 25; Laws 1985, LB 102, § 14; Laws 1993, LB 3, § 6; Laws 2000, LB 900, § 141.

46-2,110
Permit to appropriate water for instream flows; application; requirements.

Following notice and a public hearing, any natural resources district or the Game and Parks Commission may file with the director an application for a permit to appropriate water for instream flows in each stream segment identified pursuant to section 46-2,109. The application shall include the locations on the stream at which the need for instream flows begins and ends and the time of year when instream flows are most critical. The application

shall also provide a detailed description of the amount of water necessary to provide adequate instream flows.

Source:
Laws 1984, LB 1106, § 26; Laws 1985, LB 102, § 15; Laws 2000, LB 900, § 142.

46-2,111
Permit to appropriate water for instream flows; director; powers and duties.

(1) The Legislature finds that instream appropriations for recreation, fish, and wildlife should consider preferences among different uses and that all appropriations should consider the possible legal relationship between surface water and ground water. Thus the Legislature finds that, since such issues have not been fully considered, the director shall not grant any permit to appropriate water, except as specified in subsection (2) of this section, before January 1, 1997, for any application pending on or filed after June 2, 1995.

(2) The director may grant applications for (a) appropriations for flood control or sediment control structures which will not make or cause to be made any consumptive use of the impounded water, (b) applications for temporary appropriations for public construction that are five cubic feet per second or less, or (c) applications by public water suppliers for induced ground water recharge appropriations pursuant to sections 46-233 to 46-238.

Source:
Laws 1995, LB 871, § 5; Laws 2000, LB 900, § 143.

46-2,112
Permit to appropriate water for instream flows; hearing; when; notice; director; powers.

The director shall set a time and place for hearing every fifteen years from the date a permit to appropriate water for instream flows is granted. Notice of the hearing shall be given to the parties to the original application and shall be published in a newspaper published or of general circulation in the area involved at least once each week for three consecutive weeks, the last publication to be not less than seven days prior to the hearing. The purpose of the hearing shall be to receive evidence regarding whether the water appropriated under the permit still provides the beneficial uses for which the permit was granted and whether the permit is still in the public interest. The hearing shall proceed under the rebuttable presumption that the appropriation continues to provide the beneficial uses for which the permit was granted and that the appropriation is in the public interest. After the hearing, the director may by order modify or cancel, in whole or in part, the instream appropriation.

Source:
Laws 1997, LB 877, § 2; Laws 2000, LB 900, § 144.

46-2,113
Director; modify appropriation or application; when.

It is in the state's and the public interest that the filing of the following classes of applications before the department demand that the director shall appropriately modify any existing or pending instream appropriation or application to not interfere with such application or the granting of such appropriation:

(1) Applications for induced recharge to public water supply wells;

(2) Applications for storage rights necessary for flood and sediment control projects which are dry or will not result in a net consumption of water exceeding two hundred acre-feet on an average annual basis;

(3) Applications for transfer permits associated with natural flow, storage use, power generation, or hydropower;

(4) Applications for de minimis uses; or

(5) Applications for industrial or manufacturing de minimis consumptive uses.

Source:
Laws 1997, LB 877, § 3; Laws 2000, LB 900, § 145.

46-2,114
Proposed instream appropriation; additional studies; notice of application.

Prior to taking action on an application for an instream appropriation, the director shall conduct any studies he or she deems necessary to evaluate the application and shall publish notice of such application at the applicant's expense at least once a week for three consecutive weeks in a newspaper of general circulation in the area of the stream segment and also in a newspaper of statewide circulation. The notice shall state that any person having an interest may in writing object to and request a hearing on the application. Any such objection and request for hearing shall be filed with the department within two weeks of final publication of the notice.

Source:
Laws 1984, LB 1106, § 30; Laws 1985, LB 102, § 16; Laws 1987, LB 140, § 11; Laws 1991, LB 278, § 2; Laws 2000, LB 900, § 146.

46-2,115
Application for instream appropriation; approval; when.

An application for an instream appropriation which is pending on or filed after January 1, 1997, shall be approved by the director if he or she finds that:

(1) In order to allow for future beneficial uses, there is unappropriated water available to provide the approved instream flow rate at least twenty percent of the time during the period requested;

(2) The appropriation is necessary to maintain the existing recreational uses or needs of existing fish and wildlife species;

(3) The appropriation will not interfere with any senior surface water appropriation;

(4) The rate and timing of the flow is the minimum necessary to maintain the existing recreational uses or needs of existing fish and wildlife species; and

(5) The application is in the public interest.

The application may be granted for a rate of flow that is less than that requested by the applicant or for a shorter period of time than requested by the applicant.

Source:
Laws 1984, LB 1106, § 31; Laws 1985, LB 102, § 17; Laws 1997, LB 877, § 4; Laws 2000, LB 900, § 147.

46-2,116
Application for instream appropriation; public interest determination; factors.

In determining whether an application for an instream appropriation is in the public interest, the director shall consider the following factors:

(1) The economic, social, and environmental value of the instream use or uses including, but not limited to, recreation, fish and wildlife, induced recharge for municipal water systems, and water quality maintenance; and

(2) The economic, social, and environmental value of reasonably foreseeable alternative out-of-stream uses of water that will be foregone or accorded junior status if the appropriation is granted.

Source:
Laws 1984, LB 1106, § 32; Laws 1985, LB 102, § 18; Laws 1991, LB 772, § 5.

46-2,116.01
Application for instream appropriation; use of stored water; study.

If the director determines that there is insufficient unappropriated natural flow available for an application for an instream appropriation and if the applicant consents, the department may conduct a study to determine whether the instream flow needs can be met through the use of stored water in new storage facilities. The study shall address the availability of storage sites, the estimated cost of providing any required storage, and such other findings and conclusions as the department deems appropriate.

Source:
Laws 1985, LB 102, § 19; Laws 1991, LB 772, § 6; Laws 2000, LB 900, § 148.

46-2,116.02
Instream appropriation; use of stored water; funding.

If the department determines that instream flow needs can be met through the use of stored water in new storage facilities after a study conducted under section 46-2,116.01, the applicant may request financial assistance for the construction of necessary storage facilities from the Nebraska Resources Development Fund. The cost of the project may be shared with any other users of the stored water.

Source:
Laws 1985, LB 102, § 20; Laws 1991, LB 772, § 7; Laws 2000, LB 900, § 149.

46-2,117
Contested case hearing; mediation or nonbinding arbitration required; when; costs.

The director shall not conduct a contested case hearing on an instream appropriation application filed after January 1, 1997, other than a hearing to address procedural matters, until such time as the parties have completed mediation or nonbinding arbitration. Mediation or nonbinding arbitration shall be deemed completed when the person retained to conduct the mediation or nonbinding arbitration has concluded further efforts would probably not result in resolution of major issues. The costs of mediation or nonbinding arbitration shall be shared by the parties.

Source:
Laws 1997, LB 877, § 5; Laws 2000, LB 900, § 150.

46-2,118
Instream appropriation; limited to defined stream segment.

(1) All water used to provide instream flows shall be applied only to that segment of the stream for which the appropriation is granted. The stream segment and the determination of a reasonable and necessary amount of water required for instream flow purposes shall be defined specifically by the director in the permit.

(2) After the water allowed for instream flows has passed through the defined stream segment, all rights to such water shall be deemed relinquished and the water shall be available for appropriation.

Source:
Laws 1984, LB 1106, § 34; Laws 2000, LB 900, § 151.

46-2,119
Instream appropriations; manner of administration.

Instream appropriations shall be administered in the same manner as prescribed by Chapter 46, article 2, for other appropriations, except that existing reservoirs shall not be required by the director to release impounded water for instream appropriations. Instream flow appropriations shall not be superior to existing storage rights as provided in section 46-241. Instream appropriations may be canceled as provided in section 46-229.04.

Source:
Laws 1984, LB 1106, § 35; Laws 1988, LB 953, § 1; Laws 2000, LB 900, § 152.

46-2,120
District or company; notice to landowner; when required; terms, defined.

(1) Any irrigation district, reclamation district, public power and irrigation district, rural water district, or mutual irrigation or canal company using the procedure described in sections 46-2,121 to 46-2,129 and which is exempt from sections 84-1408 to 84-1414 shall provide notice by mail to each owner of land in the district or served by the company not less than seven days before any meeting or hearing under sections 46-2,121 to 46-2,129.

(2) For purposes of sections 46-2,120 to 46-2,130:

(a) Department means the Department of Natural Resources; and

(b) Director means the Director of Natural Resources.

Source:
Laws 1995, LB 99, § 1; Laws 2000, LB 900, § 153.

46-2,121
District or company; hold appropriation; sections; how construed.

Any irrigation district, reclamation district, public power and irrigation district, rural water district, or mutual irrigation or canal company shall hold all water appropriations filed in the district's or company's name for the benefit of the owners of land to which the water appropriations are attached. Sections 46-2,120 to 46-2,129 shall not be construed to modify the rights of landowners to any water appropriation.

Source:
Laws 1995, LB 99, § 2.

46-2,122
District or company; application for transfer and map; filing requirements; approval; conditions.

(1) Any irrigation district, reclamation district, public power and irrigation district, rural water district, or mutual irrigation or canal company may file an application for transfer and a map with the department identifying all tracts of lands that have received water delivered by the district or company and beneficially applied to the tract in at least one of the preceding ten consecutive years. The application for transfer and map shall be prepared and filed in accordance with the rules and regulations of the department.

(2) Any tract of land within the boundaries of the district or served by the company may receive a water appropriation, or portion thereof, transferred from a tract or tracts of land currently under the appropriation on file with the department. The director shall grant the transfer if:

(a) The owner of the land to which the water appropriation is attached and the owner of the ditch, canal, or other diverting works subject to transfer consent in writing to the department to the transfer of the appropriation from the tract of land;

(b) The water allotment on the receiving tract of land will not exceed the amount that can be beneficially used for the purposes for which the appropriation was made and will not exceed the least amount of water that experience may indicate is necessary, in the exercise of good husbandry, for the production of crops;

(c) The water will be applied on the receiving tract to a use in the same preference category as the use on the transferring tract; and

(d) The aggregate water use within the district or company after transfer will not exceed the aggregate water appropriation held by the district or company for the benefit of the owners of land to which the water appropriations are attached.

Source:
Laws 1995, LB 99, § 3; Laws 2000, LB 900, § 154.

46-2,123
Hearing on application and map.

The department may hold a hearing on the application for transfer and map under section 46-2,122 if the department determines that a hearing is necessary to determine whether the application for transfer and map are in compliance with such section. The department shall hold a hearing on the application if requested by any owner of land within the district or served by the company. The hearing shall be conducted in accordance with section 61-206 and the rules and regulations of the department.

Source:
Laws 1995, LB 99, § 4; Laws 2000, LB 900, § 155.

46-2,124
District or company; notice prior to meeting; requirements.

Any irrigation district, reclamation district, public power and irrigation district, rural water district, or mutual irrigation or canal company intending to file an application for transfer and a map with the department under section 46-2,122 shall give notice prior to the

meeting at which the application and map will be approved for filing. Notice shall be given in the manner provided in section 46-2,128.

Source:
Laws 1995, LB 99, § 5; Laws 2000, LB 900, § 156.

46-2,125
Order granting application and map; contents; appeal.

After an investigation and hearing, if applicable, the director shall issue an order granting or denying the application for transfer and map under section 46-2,122. The director shall deny the application if the conditions in subsection (2) of such section are not met. An order granting or denying an application for transfer and map shall be in writing and shall specify the following:

(1) The tracts of land retaining an appropriation;

(2) The tracts of land receiving an appropriation; and

(3) The tracts of land transferring an appropriation.

An appeal may be taken from the decision of the department on the application for transfer and map as provided in section 61-207.

Source:
Laws 1995, LB 99, § 6; Laws 2000, LB 900, § 157.

46-2,126
Priority date.

Any water appropriation transferred to a tract of land under sections 46-2,122 to 46-2,125 shall retain the original priority date for the water appropriation.

Source:
Laws 1995, LB 99, § 7.

46-2,127
District or company; transfer of appropriation for agricultural purposes; when.

After obtaining approval of an application for transfer and map pursuant to sections 46-2,122 to 46-2,126, the board of directors of any irrigation district, reclamation district, public power and irrigation district, rural water district, or mutual irrigation or canal company may transfer an appropriation of water distributed for agricultural purposes from a tract or tracts of land within the district or served by the company to another tract or tracts of land within the boundaries of the district or served by the company if:

(1) The district or company finds that the transferring tract of land has received and had water, delivered by the district or company pursuant to a valid water appropriation, beneficially applied in (a) at least one of the preceding three consecutive years or (b) at least one of the preceding ten consecutive years if the district or company finds that there has been sufficient cause for nonuse in the same manner as provided in section 46-229.04;

(2) The owner of the land to which the water appropriation is attached consents in writing to the transfer of the appropriation from his or her tract of land;

(3) The water appropriation, or portion thereof, proposed to be transferred has not been transferred by the board of directors of the district or company in the previous four years;

(4) The water allotment on the receiving tract of land will not exceed the amount that can be beneficially used for the purposes for which the appropriation was made and will not exceed the least amount of water that experience may indicate is necessary, in the exercise of good husbandry, for the production of crops; and

(5) After the transfer, the aggregate water use within the district or company will not exceed the aggregate water appropriation held by the district or company for the benefit of owners of land to which the water appropriations are attached.

Source:
Laws 1995, LB 99, § 8.

46-2,128
District or company; transfer of appropriation for agricultural purposes; published notice; contents.

Commencing at least six weeks but not more than twelve weeks before transferring any water appropriations under section 46-2,127, the district or company shall cause notice of the proposed transfer to be published at least once a week for three consecutive weeks in at least one newspaper of general circulation in each county containing lands on which the water appropriation is or is proposed to be applied. The district or company shall also provide the notice to the department. The notice shall contain:

(1) A description of the water appropriation to be transferred;

(2) The number assigned the water appropriation permit in the records of the department under sections 46-233 to 46-235;

(3) The priority date of the water appropriation;

(4) A description of the land to which the water appropriation is proposed to be applied;

(5) A statement that any owner of land within the district or served by the canal company may object to and request a hearing on the proposed transfer within seven calendar days after final publication; and

(6) Any other relevant information.

Source:
Laws 1995, LB 99, § 9; Laws 2000, LB 900, § 158.

46-2,129
District or company; transfer of appropriation for agricultural purposes; hearing; notice; powers and duties; priority date.

(1) The board of directors of the district or company, or the board's designee, may hold a hearing on a proposed transfer under section 46-2,127 and shall hold a hearing if requested by any owner of land within the district or served by the canal company. Notice of a hearing under this subsection shall be published at least seven calendar days prior to the hearing in at least one newspaper of general circulation in each county containing lands upon which the water appropriation is or is proposed to be applied. If the hearing is held by the board's designee, the board's designee shall make a written recommendation to the board within fifteen calendar days after the hearing. The board shall act upon the proposed transfer at the board's next regular or special meeting following receipt of the designee's recommendation.

(2) The board of directors may transfer the water appropriation at a regular or special meeting.

(3) Any water appropriation transferred to a tract of land under section 46-2,127 shall retain the original priority date for the water appropriation.

(4) All transfers shall be reported annually to the department pursuant to section 46-261.

Source:
Laws 1995, LB 99, § 10.

46-2,130
Sections; how construed.

Nothing in sections 46-2,120 to 46-2,129 shall be construed to limit or restrict the powers of the department with respect to adjudication of water rights.

Source:
Laws 1995, LB 99, § 11; Laws 2000, LB 900, § 159.

46-2,131
Legislative findings.

The Legislature finds that there are significant issues relating to the laws of Nebraska governing the management and use of Nebraska surface water and ground water. The issues to be examined are: (1) A review of Laws 1996, LB 108, to determine what, if any, changes are needed to adequately address Nebraska's conjunctive use management issues; (2) an evaluation of the utility of allowing temporary water transfers and, if deemed useful, development of draft legislation and procedures for authorizing and implementing a temporary water transfer law; (3) an evaluation of the utility of authorizing additional types of permanent water transfers and, if deemed useful, development of draft legislation and procedures for authorizing and implementing additional types of permanent water transfers; (4) a determination as to the

usefulness of water leasing or transfers and development of a potential water banking system that would facilitate the temporary or permanent transfer of water uses; and (5) a determination as to what other ways, if any, inequities between surface water users and ground water users need to be addressed and potential actions the state could take to address any such inequities. To address such issues, the Governor shall appoint a Water Policy Task Force as provided in section 46-2,132.

Source:
Laws 2002, LB 1003, § 1. Effective date July 20, 2002.

46-2,132
Water Policy Task Force; members.

(1) The members of the Water Policy Task Force shall include: (a) Twenty irrigators, with at least one irrigator from each of the state's thirteen river basins, giving consideration to maintaining a balance between surface water users and ground water users. Three irrigators shall be selected from the Republican River Basin, two irrigators shall be selected from the North Platte River Basin, two irrigators shall be selected from the middle Platte River Basin, two irrigators shall be selected from the Loup River Basin, two irrigators shall be selected from the Elkhorn River Basin, two irrigators shall be selected from the Big Blue River Basin, one irrigator shall be selected from the South Platte River Basin, one irrigator shall be selected from the lower Platte River Basin, one irrigator shall be selected from the Little Blue River Basin, one irrigator shall be selected from the Nemaha River Basin, one irrigator shall be selected from the Niobrara River Basin, one irrigator shall be selected from the White Hat River Basin, and one irrigator shall be selected from the Missouri tributaries basin; (b) three

representatives from differing agricultural organizations; (c) three representatives from differing environmental organizations; (d) two representatives from differing recreational organizations; (e) three representatives to represent the state at large; (f) five representatives suggested for the Governor's consideration by the Nebraska Association of Resources Districts; (g) four representatives suggested for the Governor's consideration by the Nebraska Power Association; (h) five representatives suggested for the Governor's consideration by the League of Nebraska Municipalities, with consideration given to maintaining a balance between larger and smaller municipalities; and (i) such other members as the Governor deems appropriate to provide the task force with adequate and balanced representation. The Governor shall notify the Legislature upon completion of the appointments.

(2) Additional members of the task force shall be: (a) One representative from the Department of Natural Resources to coordinate as appropriate with other state agencies; (b) one representative from the Attorney General's office; (c) the chairperson of the Natural Resources Committee of the Legislature; and (d) the vice chairperson of the Natural Resources Committee of the Legislature. Other members of the Legislature may participate as desired.

Source:
Laws 2002, LB 1003, § 2. Effective date July 20, 2002.

46-2,133
Meeting facilitator.

On behalf of the Water Policy Task Force, the Natural Resources Committee of the Legislature shall contract for

the services of a meeting facilitator and such other assistance as the task force deems necessary within the limits of the funds appropriated. Such contract shall have the approval of the Executive Board of the Legislative Council. In making its selection for facilitator, the Natural Resources Committee shall consult with the Attorney General's office and the Department of Natural Resources.

Source:
Laws 2002, LB 1003, § 3. Effective date July 20, 2002.

46-2,134
Executive committee; duties.

The Water Policy Task Force shall select an executive committee. The executive committee shall consist of three representatives from irrigation interests; one representative from an agricultural organization; one representative from an environmental organization; one representative from a recreational organization; one representative of the state at large; one representative of natural resources districts; one representative of the Nebraska Power Association; one representative of municipalities; one representative of the Department of Natural Resources; one representative of the Attorney General's office; and the chairperson and vice chairperson of the Natural Resources Committee of the Legislature. Each executive committee member shall be responsible for representing the rest of his or her interest group on the executive committee. The executive committee shall be responsible for developing the operating rules of the task force and for developing proposals and recommendations to be considered by the entire task force. The executive committee shall apply for a grant of a minimum of three hundred fifty thousand dollars from the Nebraska Environmental Trust Fund

prior to the application deadline of September 9, 2002, for grants to be awarded and funded in 2003.

Source:
Laws 2002, LB 1003, § 4. Effective date July 20, 2002.

46-2,135
Meetings.

The Water Policy Task Force shall meet at least four times each year to consider the proposals and recommendations of the executive committee and any other additional times as the executive committee determines to be necessary to accomplish the objectives established in section 46-2,131.

Source:
Laws 2002, LB 1003, § 5. Effective date July 20, 2002.

46-2,136
Duties.

The Water Policy Task Force shall discuss the issues described in section 46-2,131 and such related issues as it deems appropriate, shall identify options for resolution of such issues, and shall make recommendations to the Legislature and the Governor relating to any water policy changes the task force deems desirable.

The task force shall complete its work within eighteen months after the Governor notifies the Legislature that all members of the task force have been appointed and a meeting facilitator has been selected.

Source:
Laws 2002, LB 1003, § 6. Effective date July 20, 2002.

46-2,137
Water Policy Task Force Cash Fund; created; use; investment.

The Water Policy Task Force Cash Fund is created. The fund shall be administered by the Department of Natural Resources and expended at the direction of the Water Policy Task Force. The fund shall consist of funds appropriated by the Legislature, money received as gifts, grants, and donations, and transfers authorized under sections 2-1579 and 66-1519. Any money in the fund available for investment shall be invested by the state investment officer pursuant to the Nebraska Capital Expansion Act and the Nebraska State Funds Investment Act.

Source:
Laws 2002, LB 1003, § 7. Effective date July 20, 2002.

46-601
Ground water; declaration of policy.

The Legislature finds, recognizes, and declares that the conservation of ground water and the beneficial use thereof are essential to the future well-being of this state. Complete information as to the occurrence and the use of ground water in the state is essential to the development of a sound ground water policy. The registration of all water wells in this state should be required.

Source:
Laws 1957, c. 200, § 1, p. 702; Laws 1967, c. 281, § 1, p. 760; Laws 1993, LB 131, § 1.

46-601.01
Terms, defined.

For purposes of Chapter 46, article 6:

(1) Water well means any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for ground water, monitoring ground water, utilizing the geothermal properties of the ground, obtaining hydrogeologic information, or extracting water from or injecting water into the underground water reservoir. Water well does not include any excavation made for obtaining or prospecting for oil or natural gas or for inserting media to repressure oil or natural gas bearing formations regulated by the Nebraska Oil and Gas Conservation Commission; and

(2) Common carrier means any carrier of water including a pipe, canal, ditch, or other means of piping or adjoining water for irrigation purposes.

Source:
Laws 1993, LB 131, § 2; Laws 1999, LB 92, § 1.

46-602
Registration of water wells; forms; replacement; change in ownership; illegal water well; decommissioning required; abandonment.

(1) Each water well completed in this state on or after July 1, 2001, excluding test holes and dewatering wells to be used for less than ninety days, shall be registered with the Department of Natural Resources as provided in this section within sixty days after completion of construction of the water well. The water well contractor as defined in section 46-1213 constructing the water well, or the owner of the water well if the owner constructed the water well, shall file the registration on a

form made available by the department and shall also file with the department the information from the well log required pursuant to section 46-1241. The department shall, by January 1, 2002, provide water well contractors with the option of filing such registration forms electronically. No signature shall be required on forms filed electronically. The fee required by section 46-1224 shall be the source of funds for any required fee to a contractor which provides the on-line services for such registration. Any discount in the amount paid the state by a credit card, charge card, or debit card company or a third-party merchant bank for such registration fees shall be deducted from the portion of the registration fee collected pursuant to section 46-1224.

(2) If the newly constructed water well is a replacement water well, the registration number of the water well it replaces, if applicable, and the date the original water well was or will be decommissioned shall be included on the registration form. For purposes of this section, replacement water well means a water well which (a) replaces an abandoned water well within three years after the last operation of the abandoned water well or replaces a water well that will not be used after construction of the new water well and the original water well will be abandoned within one year after such construction and (b) is constructed to provide water to the same tract of land served by the water well being replaced. No water well shall be registered as a replacement water well until the department has received a properly completed notice of abandonment for the water well being replaced.

(3) For a series of two or more water wells completed and pumped into a common carrier as part of a single site plan for irrigation purposes, a registration form and a

detailed site plan shall be filed for each water well. The registration form shall include the registration numbers of other water wells included in the series if such water wells are already registered.

(4) A series of water wells completed for purposes of installation of a ground heat exchanger for a structure for utilizing the geothermal properties of the ground shall be considered as one water well. One registration form and a detailed site plan shall be filed for each such series.

(5) One registration form shall be required along with a detailed site plan which shows the location of each such water well in the site and a log from each such water well for water wells constructed as part of a single site plan for (a) monitoring ground water, obtaining hydrogeologic information, or extracting contaminants from the ground, (b) water wells constructed as part of remedial action approved by the Department of Environmental Quality pursuant to section 66-1525, 66-1529.02, or 81-15,124, and (c) water well owners who have a permit issued pursuant to the Industrial Ground Water Regulatory Act and also have an underground injection control permit issued by the Department of Environmental Quality.

(6) The department shall be notified by the owner of any change in the ownership of a water well required to be registered under this section. Notification shall be in such form and include such evidence of ownership as the Director of Natural Resources by rule and regulation directs. The department shall use such notice to update the registration on file. The department shall not collect a fee for the filing of the notice.

(7) The water well contractor or pump installation contractor responsible therefor shall notify the department on a form provided by the department of any pump installation or any modifications to the construction of the water well or pump, after the initial registration of the well. A water well owner shall notify the department on a form provided by the department of any other changes or any inaccuracies in recorded water well information, including, but not limited to, changes in use. The department shall not collect a fee for the filing of the notice.

(8) Whenever a water well becomes an illegal water well as defined in section 46-656.07, the owner of the water well shall either correct the deficiency that causes the well to be an illegal water well or shall cause the proper decommissioning of the water well in accordance with rules and regulations adopted pursuant to the Water Well Standards and Contractors' Licensing Act. Upon proper decommissioning of any water well, written notice of abandonment shall be provided by the owner to the department within sixty days. The department shall not collect a fee for the filing of the notice.

(9) Except for water wells which are used solely for domestic purposes and were constructed before September 9, 1993, and for test holes and dewatering wells used for less than ninety days, each water well which was completed in this state before July 1, 2001, and which is not registered on that date shall be an illegal water well until it is registered with the Department of Natural Resources. Such registration shall be completed by a water well contractor or by the current owner of the water well, shall be on forms provided by the department, and shall provide as much of the information required by subsections (1)

through (5) of this section for registration of a new water well as is possible at the time of registration.

Source:
Laws 1957, c. 200, § 2, p. 702; Laws 1961, c. 230, § 1, p. 683; Laws 1967, c. 281, § 2, p. 760; Laws 1975, LB 577, § 20; Laws 1979, LB 204, § 2; Laws 1980, LB 643, § 1; Laws 1981, LB 246, § 1; Laws 1983, LB 23, § 1; Laws 1986, LB 886, § 1; Laws 1986, LB 310, § 42; Laws 1993, LB 131, § 3; Laws 1994, LB 981, § 6; Laws 1995, LB 145, § 1; Laws 1995, LB 871, § 3; Laws 1997, LB 30, § 2; Laws 1999, LB 92, § 2; Laws 2000, LB 900, § 170; Laws 2001, LB 667, § 3; Laws 2002, LB 458, § 2. Effective date July 20, 2002.

46-602.01
Water well in management area; duties; prohibited acts; penalty.

Prior to commencing construction of or installation of a pump in a water well in a management area, a water well contractor as defined in section 46-1213 or a pump installation contractor as defined in section 46-1209 shall take those steps necessary to satisfy himself or herself that the person for whom the well is to be constructed or the pump installed has obtained a permit as required by the Nebraska Ground Water Management and Protection Act.

Any person who commences or causes construction of or installation of a pump in a water well for which the required permit has not been obtained or who knowingly furnishes false information regarding such permit shall be guilty of an offense punishable as provided in section 46-613.02.

Source:
Laws 1981, LB 325, § 3; Laws 1993, LB 131, § 4; Laws 2001, LB 667, § 4.

46-603
Repealed. Laws 1993, LB 131, s. 65.

46-604
Registration form; copies; disposition.

The Director of Natural Resources shall retain the registration form required by section 46-602 and shall make a copy available to the natural resources district within which the water well is located, to the owner of the water well, and to the water well contractor as defined in section 46-1213.

Source:
Laws 1957, c. 200, § 4, p. 703; Laws 1961, c. 227, § 4, p. 673; Laws 1961, c. 230, § 3, p. 685; Laws 1986, LB 886, § 3; Laws 1993, LB 131, § 5; Laws 2000, LB 900, § 171; Laws 2001, LB 667, § 5.

46-605
Repealed. Laws 1986, LB 886, s. 6.

46-606
Water wells; registration fees; disposition.

(1) The Director of Natural Resources shall collect in advance a registration fee of thirty dollars and the fee required by section 46-1224 for each water well registered under section 46-602 except as provided in subsections (2) through (5) of this section.

(2) For water wells permitted pursuant to the Industrial Ground Water Regulatory Act, the director shall collect in advance a registration fee of thirty dollars and the fee required by section 46-1224 for each of the first ten such water wells registered under section 46-602, and for

each group of ten or fewer such water wells registered thereafter, the director shall collect in advance a registration fee of thirty dollars and the fee required by section 46-1224.

(3) For a series of water wells completed for purposes of installation of a ground heat exchanger for a structure for utilizing the geothermal properties of the ground, the director shall collect in advance a fee of thirty dollars for each such series and the fee required by section 46-1224.

(4) For water wells constructed as part of a single site plan for monitoring ground water, obtaining hydrogeologic information, or extracting contaminants from the ground, the director shall collect in advance a registration fee of thirty dollars and the fee required by section 46-1224 for each of the first five such water wells registered under section 46-602, and for each group of five or fewer such water wells registered thereafter, the director shall collect in advance a registration fee of thirty dollars and the fee required by section 46-1224. However, if such water wells are a part of remedial action approved by the Department of Environmental Quality pursuant to section 66-1525, 66-1529.02, or 81-15,124, the fee set pursuant to this subsection shall be collected as if only one water well was being registered and the fee required by section 46-1224 shall be collected.

(5)(a) For a series of two or more water wells completed and pumped into a common carrier as part of a single site plan for irrigation purposes, the director shall collect in advance a registration fee of thirty dollars and the fee required by section 46-1224 for each of the first two such wells registered under section 46-602.

(b) Any additional water wells which are part of a series registered under this subsection shall not be subject to a new well registration fee.

(6) The director shall remit the fees collected to the State Treasurer for credit to the appropriate fund. From the registration fees required by subsections (1) through (5) of this section, the State Treasurer shall credit to the Department of Natural Resources Cash Fund one-half the amount determined by the Department of Natural Resources to be necessary to pay for the costs of notices filed pursuant to section 46-230, the costs of water resources update notices required by section 76-2,124, and the costs for making corrections to water well registration data authorized by subsections (6) and (7) of section 46-602 and shall credit the remainder of the registration fees required by subsections (1) through (5) of this section to the Water Well Decommissioning Fund. From the fees required by section 46-1224, the State Treasurer shall credit to the Department of Natural Resources Cash Fund one-half the amount determined by the Department of Natural Resources to be necessary to pay for the costs of the notices filed pursuant to section 46-230, the costs of water resources update notices required by section 76-2,124, and the costs for making corrections to water well registration data authorized by subsections (6) and (7) of section 46-602 and shall credit the remainder of the fees required by section 46-1224 to the Water Well Standards and Contractors' Licensing Fund. This subsection terminates on December 31, 2004.

Source:
Laws 1957, c. 200, § 6, p. 703; Laws 1986, LB 886, § 4; Laws 1986, LB 310, § 43; Laws 1993, LB 131, § 6; Laws 1994, LB 981, § 7; Laws 1999, LB 92, § 3; Laws 2000, LB 900, § 172; Laws 2001, LB 667, § 6; Laws 2002, LB 458, § 3. Effective date July 20, 2002.

46-607
Repealed. Laws 1993, LB 131, s. 65.

46-608
Ground water; conservation; declaration of policy.

The Legislature finds, recognizes, and declares that the conservation of ground water and the beneficial use thereof are essential to the future well-being of this state, that the drilling of irrigation water wells in the state without regard to spacing is detrimental to the public welfare, and that the spacing of irrigation water wells should be regulated.

Source:
Laws 1957, c. 201, § 1, p. 704; Laws 1993, LB 131, § 7.

46-609
Irrigation water wells; spacing; requirements; exceptions.

(1) No irrigation water well shall be drilled upon any land in this state within six hundred feet of any registered irrigation water well except (a) any water well the water from which is used solely for domestic, culinary, stock use on a ranch or farm, or the watering of lawns and gardens for family use or profit where the area to be irrigated does not exceed two acres, (b) as provided in section 46-610, and (c) that any irrigation water well which replaces an irrigation water well drilled prior to September 20, 1957, and which is less than six hundred feet from a registered

irrigation water well shall be drilled within fifty feet of the old water well.

(2) The spacing protection of subsection (1) of this section shall apply to an unregistered water well for a period of thirty days after completion of such water well.

Source:
Laws 1957, c. 201, § 2, p. 705; Laws 1972, LB 1238, § 1; Laws 1981, LB 146, § 3; Laws 1993, LB 131, § 8.

46-610
Irrigation water wells; special permit to drill without regard to spacing; application; fee.

(1) Any person may apply to the Director of Natural Resources for a special permit to drill an irrigation water well without regard to the spacing requirements of section 46-609 and shall pay a fee to the Department of Natural Resources of twelve dollars and fifty cents, which fee shall be remitted to the State Treasurer for credit to the General Fund. Such application shall be in such form as the director directs and shall contain a statement of the proposed location of the irrigation water well, the reason for seeking such special permit, the legal description of the land to be irrigated by the irrigation water well, the number of acres to be irrigated, the proposed size of the irrigation water well, the estimated capacity of the irrigation water well, expressed in gallons per minute, to the extent that capacity is susceptible of advance determination, and the name of the person who is actually going to construct the irrigation water well.

(2) A separate application, like that provided for in subsection (1) of this section, shall be submitted for each irrigation water well for which a special permit is sought.

When considering the approval or rejection of any application, the director shall consider the size, shape, and irrigation needs of the property for which such special permit is sought, the known ground water supply, the effect on the ground water supply and the surrounding land of the irrigation water well for which such special permit is sought, any waiver or agreement allowing the new irrigation water well by the owner of any registered irrigation water well less than six hundred feet from the location of the proposed new irrigation water well, and such other information as may be available. Such application may be approved or disapproved in whole or in part or may be approved with conditions, and the special permit shall be issued or refused accordingly.

Source:
Laws 1957, c. 201, § 3, p. 705; Laws 1993, LB 131, § 9; Laws 2000, LB 900, § 173.

46-611
Irrigation water wells; spacing requirements not applicable; when.

The prohibitions of section 46-609 shall not apply to the location of more than one irrigation water well by a landowner on his or her own farm, so long as each such irrigation water well is at least six hundred feet from any other irrigation water well located on a neighboring farm under separate ownership.

Source:
Laws 1957, c. 201, § 4, p. 705; Laws 1993, LB 131, § 10.

46-612
Repealed. Laws 1993, LB 131, s. 65.

46-612.01
Transferred to section 46-1127.

46-613
Ground water; declaration of policy; preference in use.

Preference in the use of ground water shall be given to those using the water for domestic purposes. They shall have preference over those claiming it for any other purpose. Those using the water for agricultural purposes shall have the preference over those using the same for manufacturing or industrial purposes.

As used in this section, (1) domestic use of ground water shall mean all uses of ground water required for human needs as it relates to health, fire control, and sanitation and shall include the use of ground water for domestic livestock as related to normal farm and ranch operations and (2) agricultural purposes shall include, but not be limited to, aquaculture as defined in section 2-3804.01.

Source:
Laws 1957, c. 199, § 1, p. 701; Laws 1963, c. 279, § 1, p. 835; Laws 1995, LB 871, § 4.

46-613.01
Ground water; transfer to another state; permit; Department of Natural Resources; conditions.

The Legislature recognizes and declares that the maintenance of an adequate source of ground water within this state is essential to the social stability of the state and the health, safety, and welfare of its citizens and that reasonable restrictions on the transportation of ground

water from this state are a proper exercise of the police powers of the state. The need for such restrictions, which protect the health, safety, and general welfare of the citizens of this state, is hereby declared a matter of legislative determination.

Any person, firm, city, village, municipal corporation, or other entity intending to withdraw ground water from any water well located in the State of Nebraska and transport it for use in another state shall apply to the Department of Natural Resources for a permit to do so. In determining whether to grant such permit, the Director of Natural Resources shall consider:

(1) Whether the proposed use is a beneficial use of ground water;

(2) The availability to the applicant of alternative sources of surface or ground water;

(3) Any negative effect of the proposed withdrawal on surface or ground water supplies needed to meet reasonable future demands for water in the area of the proposed withdrawal; and

(4) Any other factors consistent with the purposes of this section that the director deems relevant to protect the interests of the state and its citizens.

Issuance of a permit shall be conditioned on the applicant's compliance with the rules and regulations of the natural resources district from which the water is to be withdrawn. The applicant shall be required to provide access to his or her property at reasonable times for purposes of inspection by officials of the district or the department.

The director may include such reasonable conditions on the proposed use as he or she deems necessary to carry out the purposes of this section.

Source:
Laws 1967, c. 281, § 5, p. 761; Laws 1969, c. 9, § 69, p. 144; Laws 1984, LB 1060, § 1; Laws 1993, LB 131, § 11; Laws 2000, LB 900, § 174.

46-613.02
Violation; penalty; false information; enforcement.

Any person violating any provision of sections 46-601 to 46-613.01 or furnishing false information under such sections shall be guilty of a Class IV misdemeanor. The Department of Natural Resources may enforce such sections by instituting proceedings, actions, and prosecutions.

Source:
Laws 1978, LB 688, § 1; Laws 1984, LB 1060, § 2; Laws 1993, LB 131, § 12; Laws 2000, LB 900, § 175.

46-614
Repealed. Laws 1998, LB 896, s. 11.

46-614.01
Repealed. Laws 1998, LB 896, s. 11.

46-615
Repealed. Laws 1998, LB 896, s. 11.

46-616
Repealed. Laws 1998, LB 896, s. 11.

46-617
Repealed. Laws 1998, LB 896, s. 11.

46-617.01
Repealed. Laws 1998, LB 896, s. 11.

46-618
Repealed. Laws 1998, LB 896, s. 11.

46-619
Repealed. Laws 1998, LB 896, s. 11.

46-620
Repealed. Laws 1998, LB 896, s. 11.

46-621
Repealed. Laws 1998, LB 896, s. 11.

46-622
Repealed. Laws 1998, LB 896, s. 11.

46-623
Repealed. Laws 1998, LB 896, s. 11.

46-624
Repealed. Laws 1998, LB 896, s. 11.

46-625
Repealed. Laws 1998, LB 896, s. 11.

46-626
Repealed. Laws 1998, LB 896, s. 11.

46-627
Repealed. Laws 1998, LB 896, s. 11.

46-628
Repealed. Laws 1998, LB 896, s. 11.

46-629
Repealed. Laws 1998, LB 896, s. 11.

46-630
Repealed. Laws 1998, LB 896, s. 11.

46-631
Repealed. Laws 1998, LB 896, s. 11.

46-632
Repealed. Laws 1998, LB 896, s. 11.

46-633
Conservation district; dissolution; funds; disposition.

Upon dissolution of a ground water conservation district, the funds on hand or to be collected shall be remitted by the treasurer of the district to the county treasurer of the county in which the main office is located, and the county treasurer shall credit such funds to the general fund of the county.

Source:
Laws 1959, c. 221, § 20, p. 780; Laws 1967, c. 282, § 12, p. 768; Laws 1997, LB 78, § 1.

46-634
Repealed. Laws 1998, LB 896, s. 11.

46-634.01
Ground water conservation districts; dissolved; assets distributed; sections; termination date.

Within ninety days after January 1, 1997, all ground water conservation districts created under the Ground Water Conservation Act of Nebraska and in existence on such date shall be dissolved and the assets distributed as provided in section 46-633. Sections 46-614 to 46-632 and 46-634 shall terminate on April 1, 1997.

Source:
Laws 1978, LB 411, § 1; Laws 1981, LB 81, § 3; Laws 1981, LB 204, § 77; Laws 1986, LB 124, § 2; Laws 1987, LB 148, § 5; Laws 1991, LB 137, § 1; Laws 1993, LB 36, § 1; Laws 1997, LB 78, § 2.

46-635
Ground water, defined.

Ground water is that water which occurs or moves, seeps, filters, or percolates through the ground under the surface of the land.

Source:
Laws 1963, c. 274, § 1, p. 827.

46-635.01
Water well, defined.

For purposes of sections 46-636 and 46-637, water well shall have the same meaning as in section 46-601.01.

Source:
Laws 1993, LB 131, § 15.

46-636
Pumping for irrigation purposes; Legislature; finding.

The Legislature finds that the pumping of water for irrigation purposes from water wells located within fifty feet of the bank of a channel of any natural stream may have a direct effect on the surface flow of such stream.

Source:
Laws 1963, c. 275, § 1, p. 828; Laws 1993, LB 131, § 16; Laws 2001, LB 667, § 7.

46-637
Pumping for irrigation purposes; permit; application; approval by Director of Natural Resources.

The use of water described in section 46-636 may only be made after securing a permit from the Department of Natural Resources for such use. If the applicant is an individual, the application for a permit shall include the

applicant's social security number. In approving or disapproving applications for such permits, the Director of Natural Resources shall take into account the effect that such pumping may have on the amount of water in the stream and its ability to meet the requirements of appropriators from the stream. This section does not apply to (1) water wells located within fifty feet of the bank of a channel of any natural stream which were in existence on July 1, 2000, and (2) replacement water wells as defined in section 46-602 that are located within fifty feet of the banks of a channel of a stream if the water wells being replaced were originally constructed prior to July 1, 2000, and were located within fifty feet of the bank of a channel of any natural stream.

Source:
Laws 1963, c. 275, § 2, p. 828; Laws 1993, LB 131, § 17; Laws 1997, LB 30, § 3; Laws 1997, LB 752, § 121; Laws 2000, LB 900, § 176; Laws 2001, LB 667, § 8.

46-638
Terms, defined; permits to public water suppliers; director; powers.

(1) The Director of Natural Resources may grant and administer permits to public water suppliers: (a) To locate, develop, and maintain ground water supplies through water wells or other means and to transport water into the area to be served; and (b) to continue existing use of ground water and the transportation of ground water into the area served.

(2) For purposes of the Municipal and Rural Domestic Ground Water Transfers Permit Act and sections 46-651 to 46-655, (a) public water supplier shall mean a city, village, municipal corporation, metropolitan utilities district, rural water district, natural resources district,

irrigation district, reclamation district, or sanitary and improvement district which supplies or intends to supply water to inhabitants of cities, villages, or rural areas for domestic or municipal purposes and (b) water well shall have the same meaning as in section 46-601.01.

Source:
Laws 1963, c. 276, § 1, p. 829; Laws 1980, LB 643, § 2; Laws 1993, LB 131, § 18; Laws 2000, LB 900, § 177.

46-639
Application for permit; contents; fee.

An applicant which desires to avail itself of the Municipal and Rural Domestic Ground Water Transfers Permit Act shall make application in writing to the Director of Natural Resources for a permit. The application shall include (1) a statement of the amount of water for which a permit is desired together with an exhibit of maps showing the location of all water wells and (2) such other information as the director deems necessary or desirable. The application shall be accompanied by a fee in the amount of fifty dollars for the first five million gallons per day and an additional twenty dollars for each additional increment of five million gallons per day requested. The fee shall be based on the amounts of water requested on a daily average basis.

Source:
Laws 1963, c. 276, § 2, p. 829; Laws 1993, LB 131, § 19; Laws 2000, LB 900, § 178.

46-640
Notice of application; publication; objections; hearing.

Upon receipt of an application filed under section 46-639, the Director of Natural Resources shall cause a notice of such application to be published at the applicant's

expense at least once a week for three consecutive weeks in a legal newspaper published or of general circulation in each county containing lands on which the water well field or any part of such water well field is or is proposed to be located. The notice shall contain a description of the lands upon which such water well field is or is proposed to be located, the amount of water requested, the number of water wells constructed or proposed, and any other relevant information. The notice shall state that any interested person may object to and request a hearing on the application by filing written objections specifically stating the grounds for each objection within two weeks after the date of final publication in the office of the director.

Source:
Laws 1963, c. 276, § 3, p. 829; Laws 1986, LB 960, § 33; Laws 1987, LB 140, § 12; Laws 1991, LB 278, § 3; Laws 1993, LB 131, § 20; Laws 2000, LB 900, § 179.

46-641
Application; hearing, when.

The Department of Natural Resources may hold a hearing on an application filed under section 46-639 on its own motion and shall hold a hearing on such an application if requested by any person pursuant to section 46-640.

Source:
Laws 1963, c. 276, § 4, p. 830; Laws 1987, LB 140, § 13; Laws 2000, LB 900, § 180.

46-642
Granting of permit; conditions; priority date.

If the Director of Natural Resources finds that the withdrawal and transportation of ground water requested by the applicant are reasonable, are not contrary to the conservation and beneficial use of ground water, and are

not otherwise detrimental to the public welfare, he or she shall grant a permit to the applicant to withdraw and transport water in the amount applied for or in a lesser amount. The permit so granted shall have a priority date as of the time when the application is filed with the director.

Source:
Laws 1963, c. 276, § 5, p. 830; Laws 1967, c. 284, § 1, p. 772; Laws 1987, LB 140, § 14; Laws 2000, LB 900, § 181.

46-643
Repealed. Laws 1987, LB 140, s. 15.

46-644
Permits; duration; revocation; procedure.

Permits granted by the Director of Natural Resources shall be valid for a period of five years after the granting of a permit and as long thereafter as the water for which the permit is granted is used. For the purposes of the Municipal and Rural Domestic Ground Water Transfers Permit Act, the commencement of construction of facilities to provide water for beneficial use shall be deemed the date of the commencement of beneficial use. If it appears that the holder of a permit granted under the act has not used water for a beneficial purpose and in accordance with the terms of the permit for more than three years, such permit may be revoked or modified by the director. The procedure for such revocation or modification shall be the same as that provided for in sections 46-229.02 to 46-229.05.

Source:
Laws 1963, c. 276, § 7, p. 831; Laws 2000, LB 900, § 182.

46-645
Recharging ground water reservoirs; permits.

The Director of Natural Resources may grant to any public water supplier permits to store excess, unused, and unappropriated water for recharging ground water reservoirs. The procedure to be followed in granting permits to utilize excess, unused, and unappropriated water for recharging ground water reservoirs shall, so far as applicable, be the same as that required for granting permits for the use of ground water as provided in the Municipal and Rural Domestic Ground Water Transfers Permit Act.

Source:
Laws 1963, c. 276, § 8, p. 831; Laws 1980, LB 643, § 3; Laws 2000, LB 900, § 183.

46-646
Orders or decisions; review.

Any person who feels aggrieved by any order or decision in connection with the granting or denial, in whole or in part, of an application for a permit or in connection with the revocation or modification of a permit may institute proceedings in the Court of Appeals in the manner provided for in section 61-207.

Source:
Laws 1963, c. 276, § 9, p. 831; Laws 1991, LB 732, § 109; Laws 2000, LB 900, § 184.

46-647
Right to recover damages; power of eminent domain; not limited.

Nothing in sections 46-638 to 46-650 shall be construed as limiting any right of an owner of an estate or interest in or concerning land to recover damage for any injury done to his or her land or to any water rights

appurtenant thereto; nor shall sections 46-638 to 46-650 limit rights of condemnation which public water suppliers have under the laws of the State of Nebraska.

Source:
Laws 1963, c. 276, § 10, p. 831; Laws 1980, LB 643, § 4.

46-648
Permittee; preference in use of ground water.

The use of ground water pursuant to a permit granted by the Director of Natural Resources under the Municipal and Rural Domestic Ground Water Transfers Permit Act shall be subject to and governed by section 46-613.

Source:
Laws 1963, c. 276, § 11, p. 832; Laws 2000, LB 900, § 185.

46-649
Director of Natural Resources; rules and regulations.

The Director of Natural Resources may adopt and promulgate all rules and regulations necessary or desirable to secure compliance with the Municipal and Rural Domestic Ground Water Transfers Permit Act.

Source:
Laws 1963, c. 276, § 12, p. 832; Laws 2000, LB 900, § 186.

46-650
Act, how cited.

Sections 46-638 to 46-650 shall be known and cited as the Municipal and Rural Domestic Ground Water Transfers Permit Act.

Source:
Laws 1963, c. 276, § 14, p. 832; Laws 1980, LB 643, § 5.

46-651
Spacing of water wells; distance.

(1) Except as provided in section 46-653 or 46-654, (a) no irrigation or industrial water well or water well of any other public water supplier shall be drilled within one thousand feet of any registered water well of any public water supplier, (b) no water well of any such public water supplier shall be drilled within one thousand feet of any registered irrigation or industrial water well, (c) no irrigation water well shall be drilled within one thousand feet of a registered industrial water well, and (d) no industrial water well shall be drilled within one thousand feet of a registered irrigation or industrial water well. Such prohibitions shall not apply to water wells owned by the same person.

(2) The well-spacing protection of subsection (1) of this section shall apply to an unregistered water well for a period of only thirty days following completion of such water well.

Source:
Laws 1965, c. 270, § 1, p. 771; Laws 1979, LB 201, § 1; Laws 1980, LB 643, § 6; Laws 1981, LB 246, § 2; Laws 1993, LB 131, § 21.

46-652
Repealed. Laws 1981, LB 246, s. 4.

46-653
Special permit to drill without regard to spacing; application; contents; fee.

Any person may apply to the Director of Natural Resources for a special permit to drill a water well without regard to the spacing requirements of section 46-651. Such

application shall be on a form prescribed and furnished by the director and shall contain a statement of the precise location of the proposed water well, facts justifying the request for such special permit, the proposed size of such water well, expressed in gallons per minute, to the extent that capacity is susceptible of advance determination, and the name of the person who is actually going to drill the water well. A separate application shall be submitted for each water well for which a special permit is sought, and each application shall be accompanied by a fee of twelve dollars and fifty cents which shall be remitted to the State Treasurer for credit to the General Fund. When considering the approval or rejection of any such application, the director shall consider the facts offered as justification of the need for special permit, the known ground water supply, and such other pertinent information as may be available. Such application may be approved or disapproved in whole or in part and the special permit issued or refused accordingly.

Source:
Laws 1965, c. 270, § 3, p. 771; Laws 1993, LB 131, § 22; Laws 2000, LB 900, § 187.

46-654
Public water supplier; protections applicable; procedure.

(1) Any public water supplier having a permit under the Municipal and Rural Domestic Ground Water Transfers Permit Act is hereby granted the protection of sections 46-651 to 46-655 for all water wells for which a permit has been or in the future is granted by the Department of Natural Resources under such act.

(2) If in its application for a permit pursuant to such act a public water supplier requests the protection of the

spacing requirements of section 46-651 for test holes and water wells under construction and if the permit is granted, the Director of Natural Resources shall identify in the permit the area to which the spacing protection will apply and the spacing protection of section 46-651 shall then apply to such area for a period of one year from the date the permit is granted. The director shall notify, by certified or registered mail, owners and occupiers of land affected by the granting of such spacing protection, according to information supplied by the applicant. Costs of providing such notice shall be borne by the applicant. Owners or occupiers of land not receiving the notice required by this subsection shall not be bound by the spacing requirements until the applicant's water wells are completed. Such protection may be extended by the director, by a similar procedure, upon application by the public water supplier and good cause shown, for additional one-year periods.

Source:
Laws 1965, c. 270, § 4, p. 772; Laws 1980, LB 643, § 8; Laws 1987, LB 93, § 14; Laws 1993, LB 131, § 23; Laws 2000, LB 900, § 188.

46-655
Violations; injunction.

Any violation of the provisions of sections 46-651 to 46-655 may be enjoined in an action brought in the district court of the county in which such violation or any attempted or threatened violation occurs.

Source:
Laws 1965, c. 270, § 5, p. 772.

46-656
Transferred to section 46-656.02.

46-656.01
Act, how cited.

Sections 46-656.01 to 46-656.67 shall be known and may be cited as the Nebraska Ground Water Management and Protection Act.

Source:
Laws 1975, LB 577, § 24; Laws 1981, LB 146, § 12; Laws 1982, LB 375, § 22; Laws 1984, LB 1071, § 15; Laws 1986, LB 894, § 31; Laws 1991, LB 51, § 8; Laws 1994, LB 480, § 27; R.S.Supp.,1994, § 46-674; Laws 1996, LB 108, § 7.

46-656.02
Declaration of intent and purpose.

The Legislature finds that ground water is one of the most valuable natural resources in the state and that an adequate supply of ground water is essential to the general welfare of the citizens of this state and to the present and future development of agriculture in the state. The Legislature recognizes its duty to define broad policy goals concerning the utilization and management of ground water and to ensure local implementation of those goals.

Every landowner shall be entitled to a reasonable and beneficial use of the ground water underlying his or her land subject to the provisions of Chapter 46, article 6, and the Nebraska Ground Water Management and Protection Act and the correlative rights of other landowners when the ground water supply is insufficient for all users. The Legislature determines that the goal shall be to extend ground water reservoir life to the greatest extent practicable consistent with beneficial use of the ground water and best management practices.

The Legislature further recognizes and declares that the management, protection, and conservation of ground water and the beneficial use thereof are essential to the economic prosperity and future well-being of the state and that the public interest demands procedures for the implementation of management practices to conserve and protect ground water supplies and to prevent the contamination or inefficient or improper use thereof. The Legislature recognizes the need to provide for orderly management systems in areas where management of ground water is necessary to achieve locally determined ground water management objectives and where available data, evidence, or other information indicates that present or potential ground water conditions, including subirrigation conditions, require the designation of areas with special regulation of development and use.

Nothing in the Nebraska Ground Water Management and Protection Act relating to the contamination of ground water is intended to limit the powers of the Department of Environmental Quality provided in Chapter 81, article 15.

Source:
Laws 1975, LB 577, § 1; Laws 1981, LB 146, § 4; Laws 1982, LB 375, § 1; Laws 1983, LB 378, § 1; Laws 1984, LB 1071, § 1; Laws 1986, LB 894, § 20; Laws 1993, LB 3, § 7; R.S.1943, (1993), § 46-656; Laws 1996, LB 108, § 8.

46-656.03
Management area; legislative findings.

The Legislature also finds that:

(1) The levels of nitrate nitrogen and other contaminants in ground water in certain areas of the state are increasing;

(2) Long-term solutions should be implemented and efforts should be made to prevent the levels of ground water contaminants from becoming too high and to reduce high levels sufficiently to eliminate health hazards;

(3) Agriculture has been very productive and should continue to be an important industry to the State of Nebraska;

(4) Natural resources districts have the legal authority to regulate certain activities and, as local entities, are the preferred regulators of activities which may contribute to ground water contamination in both urban and rural areas;

(5) The Department of Environmental Quality should be given authority to regulate sources of contamination when necessary to prevent serious deterioration of ground water quality;

(6) The powers given to districts and the Department of Environmental Quality should be used to stabilize, reduce, and prevent the increase or spread of ground water contamination; and

(7) There is a need to provide for the orderly management of ground water quality in areas where available data, evidence, and other information indicate that present or potential ground water conditions require the designation of such areas as management areas.

Source:
Laws 1986, LB 894, § 1; Laws 1993, LB 3, § 14; R.S.1943, (1993), § 46-674.02; Laws 1996, LB 108, § 9.

46-656.04
Management area; sections, how construed.

Nothing in sections 46-656.35 to 46-656.48 shall be construed to limit the powers of the Department of Health and Human Services Regulation and Licensure provided in the Nebraska Safe Drinking Water Act.

Source:
Laws 1986, LB 894, § 19; R.S.1943, (1993), § 46-674.20; Laws 1996, LB 108, § 10; Laws 1996, LB 1044, § 261.

46-656.05
Legislative findings.

The Legislature further finds:

(1) The management, conservation, and beneficial use of hydrologically connected ground water and surface water are essential to the continued economic prosperity and well-being of the state, including the present and future development of agriculture in the state;

(2) Hydrologically connected ground water and surface water may need to be managed differently from unconnected ground water and surface water in order to permit equity among water users and to optimize the beneficial use of interrelated ground water and surface water supplies;

(3) Natural resources districts already have significant legal authority to regulate activities which contribute to declines in ground water levels and to nonpoint source contamination of ground water and are the preferred entities to regulate, through ground water management areas, ground water related activities which are contributing to or are, in the reasonably foreseeable future, likely to contribute to conflicts between ground water users and

surface water appropriators or which may be necessary in order to resolve disputes over interstate compacts or decrees, or to carry out the provisions of other formal state contracts or agreements;

(4) The Department of Natural Resources is responsible for regulation of surface water resources and local surface water project sponsors are responsible for much of the structured irrigation utilizing surface water supplies, and these entities should be responsible for regulation of surface water related activities which contribute to such conflicts or provide opportunities for such dispute resolution;

(5) The department, following review and concurrence of need by the Interrelated Water Review Committee of the Nebraska Natural Resources Commission, should also be given authority to regulate ground water related activities to mitigate or eliminate disputes over interstate compacts or decrees or difficulties in carrying out the provisions of other formal state contracts or agreements if natural resources districts do not utilize their ground water management authority in a reasonable manner to prevent or minimize such disputes or difficulties; and

(6) All involved natural resources districts, the department, and surface water project sponsors should cooperate and collaborate on the identification and implementation of management solutions to such conflicts or provide opportunities for mitigation or elimination of such disputes or difficulties.

Source:
Laws 1996, LB 108, § 11; Laws 2000, LB 900, § 189.

46-656.06
Conflicts between ground and surface water use; legislative intent.

The Legislature recognizes that ground water use or surface water use in one natural resources district may have adverse effects on water supplies in another district or in an adjoining state. The Legislature intends and expects that each natural resources district within which water use is causing external impacts will accept responsibility for ground water management in accordance with the Nebraska Ground Water Management and Protection Act in the same manner and to the same extent as if the conflicts between ground water use and surface water use were contained within the district.

Source:
Laws 1996, LB 108, § 12.

46-656.07
Terms, defined.

For purposes of the Municipal and Rural Domestic Ground Water Transfers Permit Act, the Nebraska Ground Water Management and Protection Act, and sections 46-601 to 46-613.02, 46-636, 46-637, and 46-651 to 46-655, unless the context otherwise requires:

(1) Person shall mean a natural person, a partnership, a limited liability company, an association, a corporation, a municipality, an irrigation district, an agency or a political subdivision of the state, or a department, an agency, or a bureau of the United States;

(2) Ground water shall mean that water which occurs in or moves, seeps, filters, or percolates through ground under the surface of the land;

(3) Contamination or contamination of ground water shall mean nitrate nitrogen or other material which enters the ground water due to action of any person and causes degradation of the quality of ground water sufficient to make such ground water unsuitable for present or reasonably foreseeable beneficial uses;

(4) District shall mean a natural resources district operating pursuant to Chapter 2, article 32;

(5) Illegal water well shall mean (a) any water well operated or constructed without or in violation of a permit required by the Nebraska Ground Water Management and Protection Act, (b) any water well not in compliance with rules and regulations adopted and promulgated pursuant to the act, (c) any water well not properly registered in accordance with sections 46-602 to 46-604, or (d) any water well not in compliance with any other applicable laws of the State of Nebraska or with rules and regulations adopted and promulgated pursuant to such laws;

(6) To commence construction of a water well shall mean the beginning of the boring, drilling, jetting, digging, or excavating of the actual water well from which ground water is to be withdrawn;

(7) Management area shall mean any area so designated by a district pursuant to section 46-656.20, by the Director of Environmental Quality pursuant to section 46-656.39, or by the Director of Natural Resources pursuant to section 46-656.52. Management area shall include a control area or a special ground water quality protection area designated prior to July 19, 1996;

(8) Management plan shall mean a ground water management plan developed by a district and submitted to

the Director of Natural Resources for review pursuant to sections 46-656.12 to 46-656.15;

(9) Ground water reservoir life goal shall mean the finite or infinite period of time which a district establishes as its goal for maintenance of the supply and quality of water in a ground water reservoir at the time a ground water management plan is adopted;

(10) Board shall mean the board of directors of a district;

(11) Irrigated acre shall mean any acre that is certified as such pursuant to rules and regulations of the district and that is actually capable of being supplied water through irrigation works, mechanisms, or facilities existing at the time of the allocation;

(12) Acre-inch shall mean the amount of water necessary to cover an acre of land one inch deep;

(13) Subirrigation or subirrigated land shall mean the natural occurrence of a ground water table within the root zone of agricultural vegetation, not exceeding ten feet below the surface of the ground;

(14) Best management practices shall mean schedules of activities, maintenance procedures, and other management practices utilized to prevent or reduce present and future contamination of ground water which may include irrigation scheduling, proper timing of fertilizer and pesticide application, and other fertilizer and pesticide management programs;

(15) Point source shall mean any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, channel, tunnel, conduit, well, discrete

fissure, container, rolling stock, vessel, other floating craft, or other conveyance, over which the Department of Environmental Quality has regulatory authority and from which a substance which can cause or contribute to contamination of ground water is or may be discharged;

(16) Allocation shall mean the allotment of a specified total number of acre-inches of irrigation water per irrigated acre per year or an average number of acre-inches of irrigation water per irrigated acre over any reasonable period of time;

(17) Rotation shall mean a recurring series of use and nonuse of irrigation wells on an hourly, daily, weekly, monthly, or yearly basis;

(18) Water well shall have the same meaning as in section 46-601.01; and

(19) Surface water project sponsor shall mean an irrigation district created pursuant to Chapter 46, article 1, a reclamation district created pursuant to Chapter 46, article 5, or a public power and irrigation district created pursuant to Chapter 70, article 6.

Source:
Laws 1975, LB 577, § 2; Laws 1980, LB 643, § 9; Laws 1981, LB 146, § 5; Laws 1981, LB 325, § 1; Laws 1982, LB 375, § 2; Laws 1983, LB 378, § 2; Laws 1984, LB 1071, § 2; Laws 1986, LB 886, § 5; Laws 1986, LB 894, § 21; Laws 1991, LB 51, § 1; Laws 1993, LB 3, § 8; Laws 1993, LB 121, § 279; Laws 1993, LB 131, § 24; Laws 1993, LB 439, § 1; Laws 1993, LB 789, § 5; R.S.1943, (1993), § 46-657; Laws 1996, LB 108, § 13; Laws 2000, LB 900, § 190; Laws 2001, LB 135, § 1.

46-656.08
Natural resources district; powers; enumerated.

Regardless of whether or not any portion of a district has been designated as a management area, in order to administer and enforce the Nebraska Ground Water Management and Protection Act and to effectuate the policy of the state to conserve ground water resources, a district may:

(1) Adopt and promulgate rules and regulations necessary to discharge the administrative duties assigned in the act;

(2) Require such reports from ground water users as may be necessary;

(3) Require meters to be placed on any water wells for the purpose of acquiring water use data;

(4) Conduct investigations and cooperate or contract with agencies of the United States, agencies or political subdivisions of this state, public or private corporations, or any association or individual on any matter relevant to the administration of the act;

(5) Report to and consult with the Department of Environmental Quality on all matters concerning the entry of contamination or contaminating materials into ground water supplies; and

(6) Issue cease and desist orders, following ten days' notice to the person affected stating the contemplated action and in general the grounds for the action and following reasonable opportunity to be heard, to enforce any of the provisions of the act or of orders or permits issued pursuant to the act, to initiate suits to enforce the

provisions of orders issued pursuant to the act, and to restrain the construction of illegal water wells or the withdrawal or use of water from illegal water wells.

Source:
Laws 1975, LB 577, § 8; Laws 1979, LB 26, § 2; Laws 1982, LB 375, § 18; Laws 1984, LB 1071, § 6; Laws 1986, LB 894, § 24; Laws 1993, LB 3, § 10; Laws 1993, LB 131, § 29; Laws 1995, LB 871, § 6; R.S.Supp.,1995, § 46-663; Laws 1996, LB 108, § 14.

46-656.09
Natural resources district; management area; rules and regulations; public hearing required; notice.

Before any rule or regulation is adopted pursuant to section 46-656.08, a public hearing shall be held within the district. Notice of the hearing shall be given as provided in section 46-656.19.

Source:
Laws 1980, LB 643, § 12; R.S.1943, (1993), § 46-663.01; Laws 1996, LB 108, § 15.

46-656.10
Natural resources district; cease and desist order; violation; penalty.

Any violation of a cease and desist order issued by a district pursuant to section 46-656.08 shall be a Class IV misdemeanor.

Source:
Laws 1981, LB 146, § 8; R.S.Supp.,1981, § 46-674.01; Laws 1984, LB 1071, § 16; R.S.1943, (1993), § 46-663.02; Laws 1996, LB 108, § 16.

46-656.11
Action to control or prevent runoff of water; natural resources district; rules and regulations; power to issue cease and desist orders; notice; hearing.

(1) In order to conserve ground water supplies and to prevent the inefficient or improper runoff of such ground water, each person who uses ground water irrigation in the state shall take action to control or prevent the runoff of water used in such irrigation.

(2) Each district shall adopt, following public hearing, notice of which shall be given in the manner provided in section 46-656.19, rules and regulations necessary to control or prohibit surface runoff of water derived from ground water irrigation. Such rules and regulations shall prescribe (a) standards and criteria delineating what constitutes the inefficient or improper runoff of ground water used in irrigation, (b) procedures to prevent, control, and abate such runoff, (c) measures for the construction, modification, extension, or operation of remedial measures to prevent, control, or abate runoff of ground water used in irrigation, and (d) procedures for the enforcement of this section.

(3) Each district may, upon ten days' notice to the person affected, stating the contemplated action and in general the grounds therefor, and upon reasonable opportunity to be heard, issue cease and desist orders to enforce any of the provisions of this section or rules and regulations issued pursuant to this section.

Source:
Laws 1975, LB 577, § 9; Laws 1978, LB 217, § 1; R.S.1943, (1993), § 46-664; Laws 1996, LB 108, § 17.

46-656.12
Ground water management plan; preparation required; contents; management area designation; when.

Each district shall prepare a ground water management plan based upon the best available information and submit such plan to the Director of Natural Resources for review and approval.

The plan shall include, but not be limited to, the identification to the extent possible of:

(1) Ground water supplies within the district including transmissivity, saturated thickness maps, and other ground water reservoir information, if available;

(2) Local recharge characteristics and rates from any sources, if available;

(3) Average annual precipitation and the variations within the district;

(4) Crop water needs within the district;

(5) Current ground water data-collection programs;

(6) Past, present, and potential ground water use within the district;

(7) Ground water quality concerns within the district;

(8) Proposed water conservation and supply augmentation programs for the district;

(9) The availability of supplemental water supplies, including the opportunity for ground water recharge;

(10) The opportunity to integrate and coordinate the use of water from different sources of supply;

(11) Ground water management objectives, including a proposed ground water reservoir life goal for the district. For management plans adopted or revised after July 19, 1996, the ground water management objectives may include any proposed integrated management objectives for hydrologically connected ground water and surface water supplies;

(12) Existing subirrigation uses within the district;

(13) The relative economic value of different uses of ground water proposed or existing within the district; and

(14) The geographic and stratigraphic boundaries of any proposed management area.

If the expenses incurred by a district preparing a ground water management plan exceed twenty-five percent of the district's current budget, the district may make application to the Nebraska Resources Development Fund for assistance.

If a control area, management area, or special ground water quality protection area has been designated in a district prior to July 19, 1996, the area shall be designated a management area but the district shall not be required to adopt or amend its existing rules, regulations, action plan, or ground water management plan, due to that change in designation, for the geographical area of the district included in such control area, management area, or special ground water quality protection area. A district may change references from control area or special ground water quality protection area to management area without holding a public hearing. Before taking any action

described in the remainder of this section, a district shall hold a public hearing within the district. Notice of the hearing shall be given as provided in section 46-656.19. If the changes made by Laws 1996, LB 108, require substantive changes to the district's rules, regulations, or plans, the district shall enact appropriate amendments to such rules, regulations, or plans. A district in which a special ground water quality protection area was designated prior to July 19, 1996, shall insure compliance with section 46-656.29. A district in which a control area, management area, or special ground water quality protection area was designated prior to July 19, 1996, may adopt any of the controls permitted by section 46-656.25.

Source:
Laws 1982, LB 375, § 3; Laws 1983, LB 378, § 3; Laws 1984, LB 1106, § 37; R.S.1943, (1993), § 46-673.01; Laws 1996, LB 108, § 18; Laws 2000, LB 900, § 191.

46-656.13
Ground water management plan preparation; district; solicit and utilize information.

During preparation of a ground water management plan, the district shall actively solicit public comments and opinions and shall utilize and draw upon existing research, data, studies, or any other information which has been compiled by or is in the possession of state or federal agencies, natural resources districts, or any other subdivision of the state. State agencies, districts, and other subdivisions shall furnish information or data upon the request of any district preparing such a plan. A district shall not be required to initiate new studies or data-collection efforts or to develop computer models in order to prepare a plan.

Source:
Laws 1982, LB 375, § 4; R.S.1943, (1993), § 46-673.02; Laws 1996, LB 108, § 19.

46-656.14
Ground water management plan; director; review; duties.

The Director of Natural Resources shall review any ground water management plan submitted by a district to ensure that the best available studies, data, and information, whether previously existing or newly initiated, were utilized and considered and that such plan is supported by and is a reasonable application of such information. If a management area is proposed and the primary purpose of the proposed management area is protection of water quality, the director shall consult with the Department of Environmental Quality regarding approval or denial of the management plan. The director shall consult with the Conservation and Survey Division of the University of Nebraska and such other state or federal agencies the director shall deem necessary when reviewing plans. Within ninety days after receipt of a plan, the director shall transmit his or her specific findings, conclusions, and reasons for approval or disapproval to the district submitting the plan.

Source:
Laws 1982, LB 375, § 5; Laws 1986, LB 894, § 27; Laws 1993, LB 3, § 12; R.S.1943, (1993), § 46-673.03; Laws 1996, LB 108, § 20; Laws 2000, LB 900, § 192.

46-656.15
Ground water management plan; disapproved by director; district; duties.

If the Director of Natural Resources disapproves a ground water management plan, the district which

submitted the plan shall, in order to establish a management area, submit to the director either the original or a revised plan with an explanation of how the original or revised plan addresses the issues raised by the director in his or her reasons for disapproval. Once a district has submitted an explanation pursuant to this section, such district may proceed to schedule a hearing pursuant to section 46-656.19.

Source:
Laws 1982, LB 375, § 6; R.S.1943, (1993), § 46-673.04; Laws 1996, LB 108, § 21; Laws 2000, LB 900, § 193.

46-656.16
Amendment of ground water management plan; contents; exception; modification.

Prior to January 1, 1996, each district shall amend its ground water management plan to identify to the extent possible the levels and sources of ground water contamination within the district, ground water quality goals, long-term solutions necessary to prevent the levels of ground water contaminants from becoming too high and to reduce high levels sufficiently to eliminate health hazards, and practices recommended to stabilize, reduce, and prevent the occurrence, increase, or spread of ground water contamination. Notwithstanding the restrictions provided in section 46-656.22, each district may modify its plan to include (1) any agreements between the district and state or federal agencies entered into as part of the review process conducted pursuant to section 46-656.14 and (2) any conditions imposed by the Director of Natural Resources during such review process. If a special ground water quality protection area has been designated in a district as of September 6, 1991, or if the study required by

section 46-656.36 or 46-656.50 recommends the designation of a management area, the district shall not be required to amend its plan for the geographical area encompassed by the special protection or management area.

Source:
Laws 1991, LB 51, § 7; Laws 1994, LB 480, § 26; Laws 1994, LB 1017, § 1; R.S.Supp.,1994, § 46-673.14; Laws 1996, LB 108, § 22; Laws 2000, LB 900, § 194.

46-656.17
District; failure to have or amend ground water management plan; effect on funding.

(1) Any district which fails to comply with section 46-656.16 shall be ineligible to receive for fiscal year 1996-97 any funds appropriated pursuant to sections 77-27,136 and 77-27,137.02.

(2) Any district which fails to have an approved ground water management plan pursuant to sections 46-656.12 to 46-656.16 by January 1, 1996, shall become eligible to receive funds enumerated in subsection (1) of this section for any subsequent fiscal year if the district has an approved ground water management plan pursuant to sections 46-656.12 to 46-656.16 by the March 1 immediately preceding the start of such fiscal year.

Source:
Laws 1994, LB 480, § 28; R.S.Supp.,1994, § 46-673.15; Laws 1996, LB 108, § 23.

46-656.18
District; implementation of ground water management plan; duty.

Each district shall, on or before January 1, 1997, begin implementation of an approved ground water

management plan pursuant to sections 46-656.12 to 46-656.16 which specifically addresses ground water quality.

Source:
Laws 1994, LB 480, § 29; R.S.Supp.,1994, § 46-673.16; Laws 1996, LB 108, § 24.

46-656.19
Management area; establishment; when; hearing; notice; procedure.

Prior to proceeding toward establishing a management area, a management plan shall have been approved by the Director of Natural Resources or the district shall have completed the requirements of section 46-656.15. If necessary to determine whether a management area should be designated, the district may initiate new studies and data-collection efforts and develop computer models. In order to establish a management area, the district shall fix a time and place for a public hearing to consider the management plan information supplied by the director and to hear any other evidence. The hearing shall be located within or in reasonable proximity to the area proposed for designation as a management area.

Notice of the hearing shall be published at the expense of the district in a newspaper published or of general circulation in the area involved at least once each week for three consecutive weeks, the last publication to be not less than seven days prior to the hearing. The notice shall provide a general description of the contents of the plan and of the area which will be considered for inclusion in the management area and a general description of all controls proposed for adoption or amendment by the district and shall identify all locations where a copy of the full text of the proposed controls may be obtained. The

full text of all controls shall be available to the public upon request not later than the date of first publication.

All interested persons shall be allowed to appear and present testimony. The hearing shall include testimony of a representative of the Department of Natural Resources and, if the primary purpose of the proposed management area is protection of water quality, of the Department of Environmental Quality and shall include the results of any studies or investigations conducted by the district.

Source:
Laws 1982, LB 375, § 7; Laws 1986, LB 894, § 28; Laws 1991, LB 51, § 2; Laws 1993, LB 3, § 13; R.S.1943, (1993), § 46-673.05; Laws 1996, LB 108, § 25; Laws 1997, LB 188, § 1; Laws 2000, LB 900, § 195.

46-656.20
Management area; designated; district; order; contents; duties; controls.

Within ninety days after the hearing the district shall determine whether a management area shall be designated. If the district determines that no management area shall be established, the district shall issue an order to that effect.

If the district determines that a management area shall be established, the district shall by order designate the area as a management area and adopt one or more controls authorized by section 46-656.25 to be utilized within the area in order to achieve the ground water management objectives specified in the plan. Such an order shall include a geographic and stratigraphic definition of the area. The boundaries and controls shall take into account any considerations brought forth at the hearing and administrative factors directly affecting the

ability of the district to implement and carry out local ground water management.

The controls adopted shall not include controls substantially different from those set forth in the notice of the hearing. The area designated by the order shall not include any area not included in the notice of the hearing.

Source:
Laws 1982, LB 375, § 8; R.S.1943, (1993), § 46-673.06; Laws 1996, LB 108, § 26.

46-656.21
Order; publication; effective; when.

The district shall cause a copy of any order adopted pursuant to section 46-656.20 to be published once each week for three consecutive weeks in a local newspaper published or of general circulation in the area involved, the last publication of which shall be not less than seven days prior to the date set for the effective date of the order. The publication shall provide a general description of the text of all controls adopted or amended by the district and shall identify all locations where a copy of the full text of the proposed controls may be obtained. The full text of all controls adopted shall be available to the public upon request at least thirty days prior to the effective date of the controls.

Such order shall become effective on the date specified by the district.

Source:
Laws 1982, LB 375, § 9; Laws 1986, LB 894, § 29; R.S.1943, (1993), § 46-673.07; Laws 1996, LB 108, § 27; Laws 1997, LB 188, § 2.

46-656.22
Management plan; ground water management objectives; management area; modifications; dissolution; procedure.

Modification of a district's ground water management plan or ground water management objectives may be accomplished utilizing the procedure established for the initial adoption of the plan. Modification of the boundaries of a district-designated management area or dissolution of such an area shall be in accordance with the procedures established in sections 46-656.19 to 46-656.21. Hearings for such modifications or for dissolution may not be initiated more often than once a year. Modification of controls also may be accomplished using the procedure in such sections.

Source:
Laws 1982, LB 375, § 15; Laws 1991, LB 51, § 6; R.S.1943, (1993), § 46-673.13; Laws 1996, LB 108, § 28.

46-656.23
Natural resources district; consult underground water storage permitholders; when.

A district shall, prior to adopting or amending any rules and regulations for a management area, consult with any holders of permits for intentional or incidental underground water storage and recovery issued pursuant to section 46-226.02, 46-233, 46-240, 46-241, 46-242, or 46-297.

Source:
Laws 1983, LB 198, § 22; R.S.1943, (1993), § 46-666.01; Laws 1996, LB 108, § 29.

46-656.24
Repealed. Laws 1998, LB 896, s. 11.

46-656.25
Management area; controls authorized; procedure.

(1) A district in which a management area has been designated shall by order adopt one or more of the following controls for the management area:

(a) It may determine the permissible total withdrawal of ground water for each day, month, or year and allocate such withdrawal among the ground water users;

(b) It may adopt a system of rotation for use of ground water;

(c) It may adopt well-spacing requirements more restrictive than those found in sections 46-609 and 46-651;

(d) It may require the installation of devices for measuring ground water withdrawals from water wells;

(e) It may adopt a system which requires reduction of irrigated acres pursuant to subsection (2) of section 46-656.26;

(f) It may limit or prevent the expansion of irrigated acres;

(g) It may require the use of best management practices;

(h) It may require the analysis of water or deep soils for fertilizer and chemical content;

(i) It may provide educational requirements, including mandatory educational requirements, designed to protect water quality or to stabilize or reduce the incidence

of ground water depletion, conflicts between ground water users and surface water appropriators, disputes over interstate compacts or decrees, or difficulties fulfilling the provisions of other formal state contracts or agreements;

(j) It may require water quality monitoring and reporting of results to the district for all water wells within all or part of the management area;

(k) It may close all or a portion of the management area to the issuance of additional permits or may condition the issuance of additional permits on compliance with other rules and regulations adopted and promulgated by the district to achieve the purpose or purposes for which the management area was designated. This subdivision may be implemented whenever the district determines the impact on surface water supplies or the depletion or contamination of the ground water supply in the management area or any portion of the management area cannot be protected through implementation of reasonable controls specified in subdivisions (1)(a) through (1)(j) of this section; and

(l) It may adopt and promulgate such other reasonable rules and regulations as are necessary to carry out the purpose for which a management area was designated.

(2) In adopting, amending, or repealing any control authorized by subsection (1) of this section or sections 46-656.26 and 46-656.27, the district's considerations shall include, but not be limited to, whether it reasonably appears that such action will mitigate or eliminate the condition which led to designation of the management area or will improve the administration of the area.

(3) Upon request by the district, the Director of Natural Resources shall review and comment on the adoption, amendment, or repeal of any authorized control in a management area. The director may hold a public hearing to consider testimony regarding the control prior to commenting on the adoption, amendment, or repeal of the control. The director shall consult with the district and fix a time, place, and date for such hearing. In reviewing and commenting on an authorized control in a management area, the director's considerations shall include, but not be limited to, those enumerated in subsection (2) of this section.

(4) If because of varying ground water uses, varying surface water uses, different irrigation distribution systems, or varying climatic, hydrologic, geologic, or soil conditions existing within a management area the uniform application throughout such area of one or more controls would fail to carry out the intent of the Nebraska Ground Water Management and Protection Act in a reasonably effective and equitable manner, the controls adopted by the district pursuant to this section may contain different provisions for different categories of ground water use or portions of the management area which differ from each other because of varying climatic, hydrologic, geologic, or soil conditions. Any differences in such provisions shall recognize and be directed toward such varying ground water uses or varying conditions. Except as otherwise provided in this section, the provisions of all controls for different categories of ground water use shall be uniform for all portions of the area which have substantially similar climatic, hydrologic, geologic, and soil conditions.

(5) The district may establish different water allocations for different irrigation distribution systems.

(6)(a) The district may establish different provisions for different hydrologic relationships between ground water and surface water.

(b) For management areas a purpose of which is the integrated management of hydrologically connected ground water and surface water, the district may establish different provisions for water wells constructed before the designation of a management area for integrated management of hydrologically connected ground water and surface water and for water wells constructed on or after the designation date or any other later date or dates established by the district.

(c) For a management area in a basin or part of a basin that is or was the subject of litigation over an interstate water compact or decree in which the State of Nebraska is a named defendant, the district may establish different provisions for restriction of water wells constructed after January 1, 2001, if such litigation was commenced before or on May 22, 2001. If such litigation is commenced after May 22, 2001, the district may establish different provisions for restriction of water wells constructed after the date on which such litigation is commenced in federal court. An appeal from a decision of the district under this subdivision shall be in accordance with the hearing procedures established in the Nebraska Ground Water Management and Protection Act.

(d) The district shall make a replacement water well as defined in section 46-602, or as further defined in district rules and regulations, subject to the same provisions as the water well it replaces.

(7) If the district has included controls delineated in subdivision (1)(k) of this section in its management plan,

but has not implemented such controls within two years after the initial public hearing on the controls, the district shall hold a public hearing, as provided in section 46-656.19, regarding the controls before implementing them.

(8) Whenever a management area designated under section 46-656.39 or 46-656.52 encompasses portions of two or more districts, the responsibilities and authorities delegated in this section and sections 46-656.26 and 46-656.27 shall be exercised jointly and uniformly by agreement of the respective boards of all districts so affected. Whenever management areas designated by two or more districts adjoin each other, the districts are encouraged to exercise the responsibilities and authorities jointly and uniformly by agreement of the respective boards.

(9) For the purpose of determining whether conflicts exist between ground water users and surface water appropriators, surface water appropriators under the Nebraska Ground Water Management and Protection Act does not include holders of instream flow appropriations under sections 46-2,107 to 46-2,119.

Source:
Laws 1975, LB 577, § 11; Laws 1978, LB 217, § 2; Laws 1979, LB 26, § 4; Laws 1980, LB 643, § 13; Laws 1981, LB 146, § 9; Laws 1982, LB 375, § 19; Laws 1983, LB 506, § 1; Laws 1983, LB 23, § 7; Laws 1984, LB 1071, § 8; Laws 1986, LB 894, § 25; Laws 1993, LB 131, § 30; R.S.1943, (1993), § 46-666; Laws 1996, LB 108, § 31; Laws 1997, LB 877, § 6; Laws 2000, LB 900, § 196; Laws 2001, LB 135, § 2; Laws 2001, LB 667, § 9.

46-656.26
Ground water allocation; limitations and conditions.

(1) If allocation is adopted for use of ground water for irrigation purposes in a management area, the

permissible withdrawal of ground water shall be allocated equally per irrigated acre except as permitted by subsections (4) through (6) of section 46-656.25. Such allocation shall specify the total number of acre-inches that are allocated per irrigated acre per year, except that the district may allow a ground water user to average his or her allocation over any reasonable period of time. A ground water user may use his or her allocation on all or any part of the irrigated acres to which the allocation applies or in any other manner approved by the district.

(2) If annual rotation or reduction of irrigated acres is adopted for use of ground water for irrigation purposes in a management area, the nonuse of irrigated acres shall be a uniform percentage reduction of each landowner's irrigated acres within the management area or a subarea of the management area. Such uniform reduction may be adjusted for each landowner based upon crops grown on his or her land to reflect the varying consumptive requirements between crops.

Source:
Laws 1982, LB 375, § 12; Laws 1991, LB 51, § 5; Laws 1993, LB 439, § 3; R.S.1943, (1993), § 46-673.10; Laws 1996, LB 108, § 32; Laws 2001, LB 135, § 3.

46-656.27
District; review controls.

A district may review any allocation, rotation, or reduction control imposed in a management area and shall adjust allocations, rotations, or reductions to accommodate new or additional uses or otherwise reflect findings of such review, consistent with the ground water management objectives. Such review shall consider new development or additional ground water uses within the area, more accurate data or information that was not available at the

time of the allocation, rotation, or reduction order, the availability of supplemental water supplies, any changes in ground water recharge, and such other factors as the district deems appropriate.

Source:
Laws 1982, LB 375, § 13; Laws 1993, LB 439, § 4; R.S.1943, (1993), § 46-673.11; Laws 1996, LB 108, § 33; Laws 2001, LB 135, § 4.

46-656.28
Joint action plan for integrated management of ground and surface water; preparation; when; procedure; factors; notice; hearing; determination; order; publication; modification; water use monitored; temporary suspension of drilling; variance.

(1) If a district on its own motion or following a request by a surface water appropriator, surface water project sponsor, ground water user, the Department of Natural Resources, or another state agency has reason to believe that a management area should be designated for integrated management of hydrologically connected ground water and surface water or that controls in a management area should be adopted to include such integrated management, the district may utilize the procedures established in sections 46-656.19 to 46-656.21 or may request that the affected appropriators, the affected surface water project sponsors, and the Department of Natural Resources consult with the district and that studies and a hearing be held on the preparation of a joint action plan for the integrated management of hydrologically connected ground water and surface water.

(2) If, following a request from a district and as a result of information available to the Department of

Natural Resources and following preliminary investigation, the Director of Natural Resources makes a preliminary determination that there is a reason to believe that the use of hydrologically connected ground water and surface water resources is contributing to or is in the reasonably foreseeable future likely to contribute to (a) conflicts between ground water users and surface water appropriators, (b) disputes over interstate compacts or decrees, or (c) difficulties fulfilling the provisions of other formal state contracts or agreements, the department shall, in cooperation with any appropriate state agency and district, conduct or coordinate any necessary studies to determine the cause of such conflicts, disputes, or difficulties and the extent of the area affected. Such studies shall be prioritized and completed within a reasonable time following such preliminary determination. The department shall issue a written report of such preliminary findings within ninety days after the completion of any such studies. The department shall consider all relevant portions of the ground water management plan developed by the district pursuant to sections 46-656.12 to 46-656.16 during the study required by this section.

(3) If the director determines from any studies conducted pursuant to subsection (2) of this section or from information otherwise available that the use of hydrologically connected ground water and surface water resources is contributing to or is in the reasonably foreseeable future likely to contribute to conflicts between ground water users and surface water appropriators, to disputes over interstate compacts or decrees, or to difficulties fulfilling the provisions of other formal state contracts or agreements and that conflicts between ground water users and surface water appropriators, disputes over interstate

compacts or decrees, or difficulties fulfilling the provisions of other formal state contracts or agreements could be eliminated or reduced through the exercise of the authority granted by subsection (5) of this section, he or she shall, within thirty days after completion of the report required by subsection (2) of this section, consult with the affected surface water appropriators and district containing the area affected by such conflicts, disputes, or difficulties and fix a time and place for a public hearing to consider the report, hear any other relevant evidence, and secure testimony on whether a joint action plan should be prepared. The hearing shall be held within ninety days after completion of the report, shall be open to the public, and shall be located within or in reasonable proximity to the area considered in the report. Notice of the hearing shall be published in a newspaper published or of general circulation in the area involved at least once each week for three consecutive weeks. The last publication shall be not less than seven days prior to the hearing. The notice shall provide a general description of all areas which will be considered for inclusion in the management area for which the district and director are considering in the preparation of a joint action plan.

(4) At the hearing, all interested persons shall be allowed to appear and present testimony. The Conservation and Survey Division of the University of Nebraska, the Department of Health and Human Services Regulation and Licensure, the Department of Environmental Quality, the affected surface water project sponsor or sponsors, and the appropriate surface water appropriators and district or districts may offer as evidence any information in their possession relevant to the purpose of the hearing. Within ninety days after the hearing or after any further studies

or investigations conducted by or on behalf of the director as he or she deems necessary, the district shall determine by order whether to proceed with developing a joint action plan for integrated management.

If the district determines that it should proceed and the district and the director determine that a joint action plan should be prepared, the district and the director shall develop a joint action plan to be utilized within the area in order to mitigate or eliminate conflicts between ground water users and surface water appropriators, disputes over interstate compacts or decrees, or difficulties fulfilling the provisions of other formal state contracts or agreements.

(5) The district's portion of the joint action plan developed under this section shall include one or more of the controls authorized by section 46-656.25 and shall be completed within one year after the date of the district's resolution to proceed. The portion of the joint action plan developed by the Department of Natural Resources shall be completed within one year after the date of the district's resolution to proceed and shall include one or more of the following measures concerning the use of surface water:

(a) Increased monitoring and enforcement of surface water diversion rates and amounts diverted annually;

(b) The prohibition or limitation of additional surface water appropriations;

(c) Requirements for surface water appropriators to apply or utilize reasonable conservation measures or best management practices consistent with the good husbandry and other requirements of section 46-231; or

(d) Other reasonable restrictions on surface water use that are consistent with the intent of section 46-656.05 and the requirements of section 46-231.

If the department determines that surface water appropriators should be required to apply or utilize reasonable conservation measures or best management practices, the department's portion of the joint action plan shall allow the affected surface water appropriators and surface water project sponsors a reasonable amount of time, not to exceed one hundred eighty days unless extended by the department, to identify the conservation measures or best management practices to be applied or utilized and a schedule for such application and utilization.

(6) In developing their respective portions of the joint action plan authorized by subsection (5) of this section, the department and the district shall consider, but not be limited to considering, whether it reasonably appears that such action would mitigate or eliminate the condition which led to designation of the management area or the adoption of a joint action plan for the management area or will improve the administration of the management area.

(7) The district shall also determine that designation of a management area and adoption of a joint action plan would be in the public interest.

(8) Neither well registration dates nor appropriation dates shall be a factor in determining whether a management area shall be designated or a joint action plan prepared.

(9) In determining whether designating a management area or adopting a joint action plan would be in the public interest, the district shall consider (a) the impacts of the existing or projected diminution or degradation of water resources on (i) surface water appropriators, (ii) ground water users, (iii) public health and safety, (iv) social, economic, and environmental values in the affected area or areas, and (v) compliance with state laws, rules, or regulations, including, but not limited to, constitutional and statutory preferences in the use of water and interstate compacts or decrees, and (b) whether designation and implementation of a management area or adoption and implementation of a joint action plan would prevent or alleviate the impact of such diminution or degradation of water resources.

(10) Following completion of the district's and the director's portions of the joint action plan, the district, in order to establish a management area, shall fix a time and place for a public hearing to consider the joint action plan information and to hear any other relevant evidence. The hearing shall be held within sixty days after completion of the joint action plan and shall be located within or in reasonable proximity to the area proposed for designation as a management area.

Notice of the hearing shall be published at the expense of the district in a newspaper published or of general circulation in the area involved at least once each week for three consecutive weeks. The last publication shall be not less than seven days prior to the hearing. The notice shall provide a general description of the contents of the joint action plan and of the area which will be considered for inclusion in the management area and shall

provide the text of all controls proposed for adoption by the district and the department.

All interested persons shall be allowed to appear and present testimony. The hearing shall include testimony of a representative of the department and shall include the results of any studies or investigations conducted by the district or the director.

(11) Within ninety days after the hearing the district shall determine by order whether a management area shall be designated.

If the district determines that a management area shall be established, the district shall by order designate the area as a management area and shall adopt the joint action plan, to include one or more controls authorized by section 46-656.25 and subsection (5) of this section to be utilized within the area in order to mitigate or eliminate the conflicts, disputes, or difficulties described in subsection (9) of this section. Such an order shall include a geographic and stratigraphic definition of the area. The boundaries and controls shall take into account any considerations brought forth at the hearing and administrative factors directly affecting the ability of the district to implement and carry out local ground water management.

The controls adopted shall not include controls substantially different from those set forth in the notice of the hearing. The area designated by the order shall not include any area not included in the notice of the hearing.

(12) The district shall cause a copy of any order adopted pursuant to subsection (11) of this section to be published once each week for three consecutive weeks in a

local newspaper published or of general circulation in the area involved. The last publication shall be not less than ten days prior to the effective date of the order. The order shall become effective on the date specified by the district but not later than ninety days after the date of establishment of the management area.

(13) Modification of a district's portion of a joint action plan may be accomplished utilizing the procedure established for the initial adoption of the joint action plan. Modification of the boundaries of a district-designated management area for integrated management or dissolution of such an area shall be in accordance with the procedures established in sections 46-656.19 to 46-656.21. Hearings for such modifications or for dissolution may not be initiated more often than once a year. Modification of controls also may be accomplished using the procedure in such sections.

(14) Each district in which a joint action plan for a management area has been adopted shall, in cooperation with the surface water appropriators, any surface water project sponsors, and the department, establish a program to monitor use of hydrologically connected ground water and surface water resources in the area which is contributing to or is in the reasonably foreseeable future likely to contribute to conflicts between ground water users and surface water appropriators, to disputes over interstate compacts or decrees, or to difficulties fulfilling the provisions of other formal state contracts or agreements.

(15) For the purpose of determining whether conflicts exist between ground water users and surface water appropriators, surface water appropriators under the Nebraska Ground Water Management and Protection Act

does not include holders of instream flow appropriations under sections 46-2,107 to 46-2,119.

(16)(a) If a district, in accordance with subsection (1) of this section, has initiated the process for the preparation of a joint action plan for the integrated management of hydrologically connected ground water and surface water, the district may adopt regulations to require a temporary suspension in the drilling of certain new wells in the district or portion of the district for which the preparation of the joint action plan is proposed. If such temporary suspension is imposed, it shall apply to all new wells in the geographic area involved except (i) test holes or dewatering wells with an intended use of ninety days or less, (ii) water wells designed and constructed to pump fifty gallons per minute or less, and (iii) water wells defined by the district to be replacement water wells. The regulations to impose such temporary suspension may be adopted only after a public hearing for which notice has been given as provided in section 46-656.19. Any such temporary suspension could be imposed initially for not to exceed three years, but could be extended thereafter on an annual basis for not to exceed two years if necessary to allow adoption and implementation of a management area and action plan in accordance with subsections (11) and (12) of this section.

(b) Any such temporary suspension shall be immediately rescinded for the applicable portion or portions of the geographic area involved if any of the following events occur: (i) The director determines, in accordance with subsection (2) or (3) of this section that there is no reason to believe that the conditions described in such subsections exist and that therefore no hearing is required on a question of whether a joint action plan should be prepared; (ii)

the district determines, pursuant to subsection (5), (6), (7), (8), or (9) of this section that it should not proceed to develop a joint action plan; (iii) the district determines pursuant to subsection (11) of this section that a management area should not be adopted; or (iv) an order adopted by the district pursuant to subsection (11) of this section becomes effective and designates the area or areas involved as a management area and adopts a joint action plan which includes one or more controls authorized by section 46-656.25.

(c) The district may grant a variance from the temporary suspension if it determines that construction of a new well is necessary to alleviate an emergency situation involving the provision of water for human consumption.

This subsection does not authorize the Department of Natural Resources to temporarily suspend drilling of water wells.

This subsection terminates on December 31, 2007.

Source:
Laws 1996, LB 108, § 34; Laws 1997, LB 30, § 4; Laws 1997, LB 307, § 104; Laws 1997, LB 877, § 7; Laws 2000, LB 900, § 197; Laws 2002, LB 458, § 4. Effective date July 20, 2002.

46-656.29
Construct water well in a management area; permit required; application; form; fee; contents; late permit application; fee.

(1) Any person who intends to construct a water well in a management area in this state on land which he or she owns or controls shall, before commencing construction, apply with the district in which the water well will be

located for a permit on forms provided by the district, except that (a) no permit shall be required for test holes or dewatering wells with an intended use of ninety days or less, (b) no permit shall be required for a single water well designed and constructed to pump fifty gallons per minute or less, and (c) a district may provide by rule and regulation that a permit need not be obtained for water wells defined by the district to be replacement water wells. A district may require a permit for a water well designed and constructed to pump fifty gallons per minute or less if such water well is commingled, combined, clustered, or joined with any other water well or wells or other water source, other than a water source used to water range livestock. Such wells shall be considered one water well and the combined capacity shall be used as the rated capacity. A district may by rule and regulation require that a permit be obtained for each water well or for one or more categories of water wells designed and constructed to pump fifty gallons per minute or less, other than a water source required for human needs as it relates to health, fire control, and sanitation or used to water range livestock, in ground water management areas in which regulations have been imposed to control declining ground water levels. Forms shall be made available at each district in which a management area is located, in whole or in part, and at such other places as may be deemed appropriate. The district shall review such application and issue or deny the permit within thirty days after the application is filed.

(2) A person shall apply for a permit under this section before he or she modifies a water well for which a permit was not required under subsection (1) of this

section into one for which a permit would otherwise be required under such subsection.

(3) The application shall be accompanied by a seventeen-dollar-and-fifty-cent filing fee payable to the district and shall contain (a) the name and post office address of the applicant or applicants, (b) the nature of the proposed use, (c) the intended location of the proposed water well or other means of obtaining ground water, (d) the intended size, type, and description of the proposed water well and the estimated depth, if known, (e) the estimated capacity in gallons per minute, (f) the acreage and location by legal description of the land involved if the water is to be used for irrigation, (g) a description of the proposed use if other than for irrigation purposes, (h) the registration number of the water well being replaced if applicable, and (i) such other information as the district requires.

(4) Any person who has failed or in the future fails to obtain a permit required by subsection (1) or (2) of this section shall make application for a late permit on forms provided by the district.

(5) The application for a late permit shall be accompanied by a two-hundred-fifty-dollar fee payable to the district and shall contain the same information required in subsection (3) of this section.

Source:
Laws 1975, LB 577, § 4; Laws 1980, LB 643, § 10; Laws 1981, LB 325, § 2; Laws 1982, LB 375, § 16; Laws 1983, LB 23, § 3; Laws 1984, LB 1071, § 3; Laws 1986, LB 894, § 23; Laws 1993, LB 131, § 25; Laws 1994, LB 981, § 8; Laws 1995, LB 145, § 2; R.S.Supp.,1994, § 46-659; Laws

1996, LB 108, § 35; Laws 1998, LB 1161, § 13; Laws 1999, LB 870, § 1.

46-656.30
Permit; when denied; corrections allowed; fees nonrefundable.

An application for a permit or late permit for a water well in a management area shall be denied only if the district in which the water well is to be located finds (1) that the location or operation of the proposed water well or other work would conflict with any regulations or controls adopted by the district, (2) that the proposed use would not be a beneficial use of water for domestic, agricultural, manufacturing, or industrial purposes, or (3) in the case of a late permit only, that the applicant did not act in good faith in failing to obtain a timely permit.

If the district finds that the application is incomplete or defective, it shall return the application for correction. If the correction is not made within sixty days, the application shall be canceled. All permits shall be issued with or without conditions attached or denied not later than thirty days after receipt by the district of a complete and properly prepared application.

A permit issued shall specify all regulations and controls adopted by a district relevant to the construction or utilization of the proposed water well. No refund of any application fees shall be made regardless of whether the permit is issued, canceled, or denied. The district shall transmit one copy of each permit issued to the Director of Natural Resources.

Source:
Laws 1975, LB 577, § 5; Laws 1980, LB 643, § 11; Laws 1982, LB 375, § 17; Laws 1983, LB 23, § 4; Laws 1984, LB

1071, § 4; Laws 1993, LB 131, § 26; R.S.1943, (1993), § 46-660; Laws 1996, LB 108, § 36; Laws 2000, LB 900, § 198.

46-656.31
Issuance of permit; no right to violate rules, regulations, or controls.

The issuance by the district of a permit pursuant to section 46-656.30 or registration of a water well by the Director of Natural Resources pursuant to section 46-602 shall not vest in any person the right to violate any district rule, regulation, or control in effect on the date of issuance of the permit or the registration of the water well or to violate any rule, regulation, or control properly adopted after such date.

Source:
Laws 1975, LB 577, § 6; Laws 1983, LB 23, § 5; Laws 1984, LB 1071, § 5; Laws 1993, LB 131, § 27; R.S.1943, (1993), § 46-661; Laws 1996, LB 108, § 37; Laws 2000, LB 900, § 199.

46-656.32
Issuance of permit; commence construction and complete water well within one year; failure; effect.

When any permit is approved pursuant to section 46-656.30, the applicant shall commence construction as soon as possible after the date of approval and shall complete the construction and equip the water well prior to the date specified in the conditions of approval, which date shall be not more than one year after the date of approval, unless it is clearly demonstrated in the application that one year is an insufficient period of time for such construction. If the applicant fails to complete the project under the terms of the permit, the district may withdraw the permit.

Source:
Laws 1975, LB 577, § 7; Laws 1983, LB 23, § 6; Laws 1993, LB 131, § 28; R.S.1943, (1993), § 46-662; Laws 1996, LB 108, § 38.

46-656.33
Director of Natural Resources; rules and regulations; Ground Water Management Fund; created; use; investment.

All fees paid to the Director of Natural Resources in accordance with the terms of the Nebraska Ground Water Management and Protection Act shall be paid into the Ground Water Management Fund which is hereby created and which shall be administered by the director. Any money credited to the fund may be utilized by the director for payments of expenses incurred in the administration of the act. Any money in the fund available for investment shall be invested by the state investment officer pursuant to the Nebraska Capital Expansion Act and the Nebraska State Funds Investment Act.

Source:
Laws 1975, LB 577, § 15; Laws 1984, LB 1071, § 12; Laws 1995, LB 7, § 42; R.S.Supp.,1995, § 46-670; Laws 1996, LB 108, § 39; Laws 2000, LB 900, § 200.

46-656.34
Repealed. Laws 1996, LB 1114, s. 75.

46-656.35
Management area; reports required.

Each state agency and political subdivision shall promptly report to the Department of Environmental Quality any information which indicates that contamination is occurring.

Source:
Laws 1986, LB 894, § 2; Laws 1993, LB 3, § 15; R.S.1943, (1993), § 46-674.03; Laws 1996, LB 108, § 41.

46-656.36
Management area; Department of Environmental Quality; conduct study; when; report.

If, as a result of information provided pursuant to section 46-656.35 or studies conducted by or otherwise available to the Department of Environmental Quality and following preliminary investigation, the Director of Environmental Quality makes a preliminary determination (1) that there is reason to believe that contamination of ground water is occurring or likely to occur in an area of the state in the reasonably foreseeable future and (2) that the natural resources district or districts in which the area is located have not designated a management area or have not implemented adequate controls to prevent such contamination from occurring, the department shall, in cooperation with any appropriate state agency and district, conduct a study to determine the source or sources of the contamination and the area affected by such contamination and shall issue a written report within one year of the initiation of the study. During the study, the department shall consider the relevant water quality portions of the management plan developed by each district pursuant to sections 46-656.12 to 46-656.16, whether the district has designated a management area encompassing the area studied, and whether the district has adopted any controls for the area.

Source:
Laws 1986, LB 894, § 3; Laws 1993, LB 3, § 16; R.S.1943, (1993), § 46-674.04; Laws 1996, LB 108, § 42.

46-656.37
Management area; contamination; point source; Director of Environmental Quality; duties.

If the Director of Environmental Quality determines from the study conducted pursuant to section 46-656.36 that one or more sources of contamination are point sources, he or she shall expeditiously use the procedures authorized in the Environmental Protection Act to stabilize or reduce the level and prevent the increase or spread of such contamination.

Source:
Laws 1986, LB 894, § 4; Laws 1993, LB 3, § 17; R.S.1943, (1993), § 46-674.05; Laws 1996, LB 108, § 43.

46-656.38
Management area; contamination; not point source; Director of Environmental Quality; duties; hearing; notice.

If the Director of Environmental Quality determines from the study conducted pursuant to section 46-656.36 that one or more sources of contamination are not point sources and if a management area, a purpose of which is protection of water quality, has been established which includes the affected area, the Director of Environmental Quality shall consider whether to require the district which established the management area to adopt an action plan as provided in sections 46-656.39 to 46-656.43.

If the Director of Environmental Quality determines that one or more of the sources are not point sources and if such a management area has not been established or does not include all the affected area, he or she shall, within thirty days after completion of the report required by section 46-656.36, consult with the district within whose boundaries the area affected by such contamination is

located and fix a time and place for a public hearing to consider the report, hear any other evidence, and secure testimony on whether a management area should be designated or whether an existing area should be modified. The hearing shall be held within one hundred twenty days after completion of the report, shall be open to the public, and shall be located within or in reasonable proximity to the area considered in the report. Notice of the hearing shall be published in a newspaper published or of general circulation in the area involved at least once each week for three consecutive weeks, the last publication to be not less than seven days prior to the hearing. The notice shall provide a general description of all areas which will be considered for inclusion in the management area.

At the hearing, all interested persons shall be allowed to appear and present testimony. The Conservation and Survey Division of the University of Nebraska, the Department of Health and Human Services Regulation and Licensure, the Department of Natural Resources, and the appropriate district may offer as evidence any information in their possession which they deem relevant to the purpose of the hearing. After the hearing and after any studies or investigations conducted by or on behalf of the Director of Environmental Quality as he or she deems necessary, the director shall determine whether a management area shall be designated.

Source:
Laws 1986, LB 894, § 5; Laws 1991, LB 51, § 9; Laws 1993, LB 3, § 18; R.S.1943, (1993), § 46-674.06; Laws 1996, LB 108, § 44; Laws 1996, LB 1044, § 260; Laws 2000, LB 900, § 201.

46-656.39

Management area; designation or modification of boundaries; adoption of action plan; considerations; procedures; order.

(1) When determining whether to designate or modify the boundaries of a management area or to require a district which has established a management area, a purpose of which is protection of water quality, to adopt an action plan for the affected area, the Director of Environmental Quality shall consider:

(a) Whether contamination of ground water has occurred or is likely to occur in the reasonably foreseeable future;

(b) Whether ground water users, including, but not limited to, domestic, municipal, industrial, and agricultural users, are experiencing or will experience within the foreseeable future substantial economic hardships as a direct result of current or reasonably anticipated activities which cause or contribute to contamination of ground water;

(c) Whether methods are available to stabilize or reduce the level of contamination;

(d) Whether, if a management area has been established which includes the affected area, the controls adopted by the district pursuant to section 46-656.25 as administered and enforced by the district are sufficient to address the ground water quality issues in the management area; and

(e) Administrative factors directly affecting the ability to implement and carry out regulatory activities.

(2) If the Director of Environmental Quality determines that no such area should be established, he or she shall issue an order declaring that no management area shall be designated.

(3) If the Director of Environmental Quality determines that a management area shall be established, that the boundaries of an existing management area shall be modified, or that the district shall be required to adopt an action plan, he or she shall consult with relevant state agencies and with the district or districts affected and determine the boundaries of the area, taking into account the effect on political subdivisions and the socioeconomic and administrative factors directly affecting the ability to implement and carry out local ground water management, control, and protection. The report by the Director of Environmental Quality shall include the specific reasons for the creation of the management area or the requirement of such an action plan and a full disclosure of the possible causes.

(4) When the boundaries of an area have been determined or modified, the Director of Environmental Quality shall issue an order designating the area as a management area, specifying the modified boundaries of the management area, or requiring such an action plan. Such an order shall include a geographic and stratigraphic definition of the area.

Source:
Laws 1986, LB 894, § 6; Laws 1991, LB 51, § 10; Laws 1993, LB 3, § 19; R.S.1943, (1993), § 46-674.07; Laws 1996, LB 108, § 45.

46-656.40
Management area; action plan; preparation by district; when; hearing; notice; publication.

(1) Within one hundred eighty days after the designation of a management area or the requiring of an action plan for a management area, a purpose of which is protection of water quality, the district or districts within whose boundaries the area is located shall prepare an action plan designed to stabilize or reduce the level and prevent the increase or spread of ground water contamination. Whenever a management area or the affected area of such a management area encompasses portions of two or more districts, the responsibilities and authorities delegated in this section shall be exercised jointly and uniformly by agreement of the respective boards of all districts so affected.

(2) Within thirty days after an action plan has been prepared, a public hearing on such plan shall be held by the district in reasonable proximity to the area to be affected. Notice of the hearing shall be published in a newspaper published or of general circulation in the area involved at least once each week for three consecutive weeks, the last publication to be not less than seven days prior to the hearing. The notice shall provide a general description of all areas to be affected by the proposed action plan and shall provide the text of all controls proposed for adoption by the district.

(3) Within thirty days after the hearing, the district shall adopt and submit an action plan to the Department of Environmental Quality.

Source:
Laws 1986, LB 894, § 7; Laws 1991, LB 51, § 11; R.S.1943, (1993), § 46-674.08; Laws 1996, LB 108, § 46; Laws 2000, LB 900, § 202.

46-656.41
Management area; action plan; contents.

An action plan filed by a district pursuant to section 46-656.40 shall include the specifics of an educational program to be instituted by the district to inform persons of methods available to stabilize or reduce the level or prevent the increase or spread of ground water contamination. The action plan shall include one or more of the controls authorized by section 46-656.25.

Source:
Laws 1986, LB 894, § 8; Laws 1991, LB 51, § 12; R.S.1943, (1993), § 46-674.09; Laws 1996, LB 108, § 47.

46-656.42
Management area; adoption or amendment of action plan; considerations; procedures.

(1) In adopting or amending an action plan authorized by subsection (2) of this section, the district's considerations shall include, but not be limited to, whether it reasonably appears that such action will mitigate or eliminate the condition which led to designation of the management area or the requirement of an action plan for a management area or will improve the administration of the area.

(2) The Director of Environmental Quality shall approve or deny the adoption or amendment of an action plan within one hundred twenty days after the date the plan is submitted by the district. He or she may hold a public hearing to consider testimony regarding the action

plan prior to the issuance of an order approving or disapproving the adoption or amendment. In approving the adoption or amendment of the plan in such an area, considerations shall include, but not be limited to, those enumerated in subsection (1) of this section.

(3) If the director denies approval of an action plan by the district, the order shall list the reason the action plan was not approved. A district may submit a revised action plan within sixty days after denial of its original action plan to the director for approval subject to section 46-656.45.

Source:
Laws 1986, LB 894, § 9; Laws 1991, LB 51, § 13; Laws 1993, LB 3, § 20; R.S.1943, (1993), § 46-674.10; Laws 1996, LB 108, § 48.

46-656.43
Management area; district publish control adopted.

Following approval of the action plan by the Director of Environmental Quality, the district shall cause a copy of each control adopted pursuant to section 46-656.42 to be published once each week for three consecutive weeks in a newspaper published or of general circulation in the area involved, the last publication of which shall be not less than seven days prior to the date when such control becomes effective.

Source:
Laws 1986, LB 894, § 10; Laws 1993, LB 3, § 21; R.S.1943, (1993), § 46-674.11; Laws 1996, LB 108, § 49.

46-656.44
Management area; district; duties.

Each district in which a management area has been designated or an action plan for a management area has

been required pursuant to section 46-656.39 shall, in cooperation with the Department of Environmental Quality, establish a program to monitor the quality of the ground water in the area and shall if appropriate provide each landowner or operator of an irrigation system with current information available with respect to fertilizer and chemical usage for the specific soil types present and cropping patterns used.

Source:
Laws 1986, LB 894, § 17; Laws 1991, LB 51, § 16; Laws 1993, LB 3, § 27; R.S.1943, (1993), § 46-674.18; Laws 1996, LB 108, § 50.

46-656.45
Management area; director specify controls; when; powers and duties; hearing.

(1) The power to specify controls authorized by section 46-656.25 shall vest in the Director of Environmental Quality if (a) at the end of one hundred eighty days following the designation of a management area or the requiring of an action plan for a management area pursuant to section 46-656.39, a district encompassed in whole or in part by the management area has not completed and adopted an action plan, (b) a district does not submit a revised action plan within sixty days after denial of its original action plan, or (c) the district submits a revised action plan which is not approved by the director.

(2) If the power to specify controls in such a management area is vested in the Director of Environmental Quality, he or she shall within ninety days adopt and promulgate by rule and regulation such measures as he or she deems necessary for carrying out the intent of the Nebraska Ground Water Management and Protection Act. He or she shall conduct one or more public hearings prior

to the adoption of controls. Notice of any such additional hearings shall be given in the manner provided in section 46-656.40. The enforcement of controls adopted pursuant to this section shall be the responsibility of the Department of Environmental Quality.

Source:
Laws 1986, LB 894, § 11; Laws 1991, LB 51, § 14; Laws 1993, LB 3, § 22; R.S.1943, (1993), § 46-674.12; Laws 1996, LB 108, § 51.

46-656.46
Management area; controls; duration; amendment of plan.

The controls in the action plan approved by the Director of Environmental Quality pursuant to section 46-656.42 shall be exercised by the district for the period of time necessary to stabilize or reduce the level of contamination and prevent the increase or spread of ground water contamination. An action plan may be amended by the same method utilized in the adoption of the action plan.

Source:
Laws 1986, LB 894, § 12; Laws 1993, LB 3, § 23; R.S.1943, (1993), § 46-674.13; Laws 1996, LB 108, § 52.

46-656.47
Management area; removal of designation or requirement of action plan; modification of boundaries; when.

A district may petition the Director of Environmental Quality to remove the director's designation of the area as a management area or the requirement of an action plan for a management area or to modify the boundaries of a management area designated pursuant to section 46-656.39. If the director determines that the level of contamination in a management area has stabilized at or

been reduced to a level which is not detrimental to beneficial uses of ground water, he or she may remove the designation or action plan requirement or modify the boundaries of the management area.

Source:
Laws 1986, LB 894, § 13; Laws 1991, LB 51, § 15; Laws 1993, LB 3, § 24; R.S.1943, (1993), § 46-674.14; Laws 1996, LB 108, § 53.

46-656.48
Management area; Environmental Quality Council; adopt rules and regulations.

The Environmental Quality Council shall adopt and promulgate, in accordance with the Administrative Procedure Act, such rules and regulations as are necessary to the discharge of duties under sections 46-656.35 to 46-656.47.

Source:
Laws 1986, LB 894, § 15; Laws 1993, LB 3, § 26; R.S.1943, (1993), § 46-674.16; Laws 1996, LB 108, § 54.

46-656.49
Disputes over interstate compacts or decrees; applicability of sections; report; contents.

Until January 1, 1999, sections 46-656.50 to 46-656.60 shall apply only to river basins subject to interstate compacts involving three or more states. A report shall be prepared by the natural resources districts in such basin or basins and presented to the Natural Resources Committee of the Legislature before December 1, 1998. The report shall include, but not be limited to, a review of any activities resulting from and relating to sections 46-656.50 to 46-656.60 and recommendations for specific changes to such sections or to other sections in the Nebraska Ground

Water Management and Protection Act. On and after January 1, 1999, sections 46-656.50 to 46-656.60 shall apply to the entire state.

Source:
Laws 1996, LB 108, § 55.

46-656.50
Disputes over interstate compacts or decrees; studies authorized; report.

If, as a result of information available to the Department of Natural Resources or a request by a district and following preliminary investigation, the Director of Natural Resources makes a preliminary determination that there is reason to believe that (1) the use of hydrologically connected ground water and surface water resources is contributing to or is in the reasonably foreseeable future likely to contribute to disputes over interstate compacts or decrees or to difficulties fulfilling the provisions of other formal state contracts or agreements and (2) the natural resources district or districts in which such use is located have not designated a management area or have not implemented adequate controls to prevent such disputes or difficulties, the department shall, in cooperation with any appropriate state agency and natural resources district, coordinate any necessary studies to determine the cause of such disputes or difficulties and the extent of the area affected. Such studies shall be prioritized and completed within a reasonable time following such preliminary determination. The department shall issue a written report of such preliminary findings within ninety days after the completion of any such studies. The department shall consider the relevant water quantity portions of the ground water management plan developed by the district

pursuant to sections 46-656.12 to 46-656.16 during the study required by this section.

Source:
Laws 1996, LB 108, § 56; Laws 2000, LB 900, § 203.

46-656.51
Disputes over interstate compacts or decrees; action plan authorized; when; hearing; procedure; notice; order.

(1) If the Director of Natural Resources determines from any studies conducted pursuant to section 46-656.50, or from information otherwise available, that the use of hydrologically connected ground water and surface water resources is contributing to or is in the reasonably foreseeable future likely to contribute to disputes over interstate compacts or decrees or to difficulties fulfilling the provisions of other formal state contracts or agreements and if a management area has been established which includes the affected area, the director shall decide whether to request the district which established the management area to adopt an action plan as provided in sections 46-656.53 to 46-656.57 in addition to the controls previously adopted by the district pursuant to section 46-656.25. The district may agree to that request and begin preparing an action plan under section 46-656.53 or may inform the director that it will not prepare an action plan unless the director requires the district to do so under subsection (2) of this section and section 46-656.52.

(2) If the director determines that the use of hydrologically connected ground water and surface water resources is contributing to or is in the reasonably foreseeable future likely to contribute to disputes or difficulties described in subsection (1) of this section and that (a) a management area has not been established or (b) he or she

is considering whether to require the district to prepare an action plan for all or part of an established management area, he or she shall, within thirty days after completion of the report required by section 46-656.50, consult with the district containing the area affected by such disputes or situations and fix a time and place for a public hearing to consider the report, hear any other evidence, and secure testimony on whether a management area should be designated or whether the district should be required to prepare an action plan. The hearing shall be held within ninety days after completion of the report, shall be open to the public, and shall be located within or in reasonable proximity to the area considered in the report. Notice of the hearing shall be published in a newspaper published or of general circulation in the area involved at least once each week for three consecutive weeks. The last publication shall be not less than seven days prior to the hearing. The notice shall provide a general description of all areas which will be considered for inclusion in the management area for which the director is considering designation or requiring the preparation of an action plan.

At the hearing, all interested persons shall be allowed to appear and present testimony. The Conservation and Survey Division of the University of Nebraska, the Department of Health and Human Services Regulation and Licensure, the Department of Environmental Quality, the affected surface water project sponsor or sponsors, the appropriate surface water appropriators, and the appropriate district or districts may offer as evidence any information in their possession relevant to the purpose of the hearing. Within thirty days after the hearing or after any studies or investigations conducted by or on behalf of the Director of Natural Resources as he or she deems

necessary, the director shall determine by order whether a management area shall be designated or an action plan required.

Source:
Laws 1996, LB 108, § 57; Laws 1997, LB 307, § 105; Laws 2000, LB 900, § 204.

46-656.52
Disputes over interstate compacts or decrees; designation of management area or preparation of action plan; determination; Director of Natural Resources; powers and duties.

(1) The Director of Natural Resources may designate a management area to allow the integrated management of hydrologically connected resources or require the district to prepare an action plan under sections 46-656.53 to 46-656.60 if the Department of Natural Resources determines:

(a) That the quantity of surface water resources is being substantially and adversely impacted or is likely to be substantially and adversely impacted in the foreseeable future because of the use of hydrologically connected ground water resources;

(b) That substantial and adverse impact is contributing to or is in the reasonably foreseeable future likely to contribute to disputes over an interstate compact or decree or to difficulties fulfilling the provisions of other formal state contracts or agreements;

(c) That designating a management area or requiring preparation of an action plan would mitigate or eliminate the disputes over the interstate compact or decree or the difficulties in fulfilling the provisions of other formal state contracts or agreements; and

(d) That designating a management area or requiring preparation of an action plan would be in the public interest.

(2) In determining whether designating a management area or requiring preparation of an action plan would be in the public interest, the director shall consider (a) the impacts of the existing or projected diminution or degradation of water resources on (i) surface water appropriators, (ii) ground water users, (iii) public health and safety, (iv) social, economic, and environmental values in the affected area or areas, and (v) compliance with state laws, rules, or regulations, including, but not limited to, constitutional and statutory preferences in the use of water and interstate compacts or decrees, and (b) whether designation and implementation of a management area or preparation and implementation of an action plan would mitigate or eliminate the impact of such diminution or degradation.

(3) Neither well registration dates nor appropriation dates shall be a factor in determining whether a management area shall be designated or a joint action plan prepared.

(4) If the director determines that a management area shall be established or that the district shall be required to adopt an action plan, he or she shall consult with relevant state agencies and with the district or districts affected and determine the boundaries of the area, taking into account the effect on political subdivisions and the socioeconomic and administrative factors directly affecting the ability to implement and carry out local ground water and surface water management, control, and protection. The report by the director shall

include the specific reasons for the creation of the management area or the requirement of such an action plan and a full disclosure of the possible causes.

(5) When the boundaries of an area have been determined, the director shall issue an order designating the area as a management area or requiring such an action plan. Such an order shall include a geographic and stratigraphic definition of the area.

Source:
Laws 1996, LB 108, § 58; Laws 2000, LB 900, § 205.

46-656.53
Disputes over interstate compacts or decrees; additional action plan required; when; hearing; notice; district; duties.

(1) Within one year after the designation of a management area or the requiring of an action plan for a management area, the Department of Natural Resources, the surface water project sponsor or sponsors, and the district or districts within which the area is located shall, in consultation with each other, prepare an action plan designed to mitigate or eliminate the incidence of disputes over interstate compacts or decrees or of difficulties fulfilling the provisions of other formal state contracts or agreements. Whenever a management area or the affected area of such a management area encompasses portions of two or more districts, the responsibilities and authorities delegated in this section shall be exercised jointly and uniformly by agreement of the respective boards of all districts so affected.

(2) Within sixty days after an action plan has been prepared, one or more public hearings on such plan shall be held by the district and the department in reasonable

proximity to the area or areas to be affected. Notice of each hearing shall be published in a newspaper published or of general circulation in the area involved at least once each week for three consecutive weeks. The last publication shall be not less than seven days prior to the hearing. The notice shall include a general description of all areas to be affected by the proposed action plan, the text of all controls proposed for adoption by the district, and the text of any surface water regulations prepared by the department.

(3) Within sixty days after the last hearing, the district shall adopt and submit its portion of the action plan to the department.

Source:
Laws 1996, LB 108, § 59; Laws 2000, LB 900, § 206.

46-656.54
Disputes over interstate compacts or decrees; additional action plan; contents.

The district's portion of the action plan adopted under section 46-656.53 shall include one or more of the controls authorized by section 46-656.25. The portion of the action plan developed by the Department of Natural Resources shall include one or more of the following measures concerning the use of surface water:

(1) Increased monitoring and enforcement of surface water diversion rates and amounts diverted annually;

(2) The prohibition or limitation of additional surface water appropriations;

(3) Requirements for surface water appropriators to apply or utilize reasonable conservation measures or best

management practices consistent with the good husbandry and other requirements of section 46-231; or

(4) Other reasonable restrictions on surface water use that are consistent with the intent of section 46-656.05 and the requirements of section 46-231.

If the department determines that surface water appropriators should be required to apply or utilize reasonable conservation measures or best management practices, the department's portion of the plan shall allow the affected surface water appropriators and surface water project sponsors a reasonable amount of time, not to exceed one hundred eighty days unless extended by the department, to identify the proposed conservation measures or best management practices to be applied or utilized and a schedule for such application and utilization.

Source:
Laws 1996, LB 108, § 60; Laws 2000, LB 900, § 207.

46-656.55
Disputes over interstate compacts or decrees; district's portion of action plan; Director of Natural Resources; approve or deny; procedure.

(1) In adopting or amending the respective portions of the action plan authorized by subsection (2) of this section, the Department of Natural Resources and the district shall consider, but not be limited to considering, whether it reasonably appears that such action will mitigate or eliminate the condition which led to designation of the management area or the requirement of an action plan for the management area or will improve the administration of the area.

(2) The Director of Natural Resources shall approve or deny the adoption or amendment of the surface water project sponsor's conservation measures and the district's portion of the action plan within ninety days after the date the plan is submitted by the district. He or she may hold a public hearing to consider testimony regarding the action plan prior to the issuance of an order approving or disapproving the adoption or amendment. In approving the adoption or amendment of the plan in such an area, considerations shall include, but not be limited to, those enumerated in subsection (1) of this section and the lawful exercise of the authority granted by the Nebraska Ground Water Management and Protection Act.

(3) If the director denies approval of the district's portion of an action plan, the order shall state the reasons for such denial. A district may, within ninety days after denial of its original action plan, submit a revised action plan to the director for approval subject to section 46-656.58.

Source:
Laws 1996, LB 108, § 61; Laws 2000, LB 900, § 208.

46-656.56
Disputes over interstate compacts or decrees; district's portion of action plan; publication; when.

Following approval of the district's portion of an action plan by the Director of Natural Resources, the district shall cause a copy of each control adopted pursuant to section 46-656.55 to be published once each week for three consecutive weeks in a newspaper published or of general circulation in the area involved. The last publication shall be not less than seven days before the date such control becomes effective.

Source:
Laws 1996, LB 108, § 62; Laws 2000, LB 900, § 209.

46-656.57
Disputes over interstate compacts or decrees; water use monitored; when.

Each district in which a management area has been designated or an action plan for a management area has been required pursuant to section 46-656.52 shall, in cooperation with the surface water project sponsors and the Department of Natural Resources, establish a program to monitor use of hydrologically connected ground water and surface water resources in the area which is contributing to or is in the reasonably foreseeable future likely to contribute to disputes over interstate compacts or decrees or to difficulties fulfilling the provisions of other formal state contracts or agreements.

Source:
Laws 1996, LB 108, § 63; Laws 2000, LB 900, § 210.

46-656.58
Disputes over interstate compacts or decrees; controls; duration; amendment authorized.

The controls in the district's portion of an action plan approved by the Director of Natural Resources pursuant to section 46-656.55 shall be exercised by the district for the period of time necessary to reduce the use of hydrologically connected ground water and surface water resources in the area which is contributing to or is in the reasonably foreseeable future likely to contribute to disputes over interstate compacts or decrees or to difficulties fulfilling the provisions of other formal state contracts or agreements. An action plan may be amended by the same method utilized in the adoption of the action plan.

Source:
Laws 1996, LB 108, § 64; Laws 2000, LB 900, § 211.

46-656.59
Disputes over interstate compacts or decrees; removal of designation of management area or action plan; modification of boundaries of management area; director; powers.

A district may petition the Director of Natural Resources to remove the designation of the area as a management area or the requirement of an action plan for a management area or to modify the boundaries of a management area designated pursuant to section 46-656.52. If the director determines that the use of hydrologically connected ground water and surface water resources in the area which is contributing to or is in the reasonably foreseeable future likely to contribute to disputes over interstate compacts or decrees or to difficulties fulfilling the provisions of other formal state contracts or agreements in a management area has stabilized at a level which is no longer detrimental to the public interest, he or she may remove the designation or action plan requirement or modify the boundaries of the management area.

Source:
Laws 1996, LB 108, § 65; Laws 2000, LB 900, § 212.

46-656.60
Disputes over interstate compacts or decrees; specification of controls vested in Director of Natural Resources; when; procedure.

(1) If (a) at the end of twelve months following the designation of a management area or the requiring of an action plan for a management area pursuant to section 46-656.52, a district encompassed in whole or in part by such a management area has not completed and adopted its

portion of an action plan, (b) a district does not submit a revised action plan within ninety days after denial of its original action plan, or (c) the district submits a revised action plan which is not approved by the Director of Natural Resources, the power to specify controls authorized in section 46-656.25 shall, subject to review and concurrence of need by the Interrelated Water Review Committee of the Nebraska Natural Resources Commission, vest in the director.

(2) If, following a review, the committee fails to concur with the need for vesting the power to specify controls in the director, the district may proceed with implementation of its portion of an action plan pursuant to sections 46-656.19 to 46-656.21.

(3) If the power to specify controls authorized in section 46-656.25 in such a management area is vested in the director, he or she shall within ninety days adopt and promulgate by rule and regulation such authorized controls as he or she deems necessary for carrying out the intent of section 46-656.55. He or she shall conduct one or more public hearings prior to the adoption of controls. Notice of any such additional hearings shall be given in the manner provided in section 46-656.53. The enforcement of controls adopted pursuant to this section shall be the responsibility of the Department of Natural Resources.

Source:
Laws 1996, LB 108, § 66; Laws 2000, LB 900, § 213.

46-656.61
Interrelated Water Review Committee of the Nebraska Natural Resources Commission; created; members; powers.

The Interrelated Water Review Committee of the Nebraska Natural Resources Commission is created. The

committee shall consist of the Governor and two commission members selected by the commission. The two commission members selected by the commission shall be selected only after a request for a decision by a district or the Department of Natural Resources, and such members shall not reside or have an interest in real property in a district all or a portion of which is included in the current or proposed management area for integrated management of hydrologically connected ground water and surface water. The committee shall have the authority to determine which position will prevail when differences of opinion occur between districts and the department on the questions of the need for, or adequacy of, district action plans and whether the power to specify ground water controls shall vest in the Director of Natural Resources pursuant to section 46-656.60. The entity requesting a decision shall state in writing the differences of opinion and what decision the entity requests the committee to make.

Source:
Laws 1996, LB 108, § 67; Laws 2000, LB 900, § 214.

46-656.62
Rules and regulations.

The Director of Natural Resources shall adopt and promulgate, in accordance with the Administrative Procedure Act, such rules and regulations as are necessary to the discharge of duties assigned to the director or the Department of Natural Resources by the Nebraska Ground Water Management and Protection Act.

Source:
Laws 1996, LB 108, § 68; Laws 2000, LB 900, § 215.

46-656.63
Management area; violation; civil penalty.

Any person who violates any of the provisions of sections 46-656.35 to 46-656.62 for which a penalty is not otherwise provided, other than the requirements imposed on a district, the Director of Natural Resources, or the Department of Natural Resources, shall be subject to a civil penalty of not more than five hundred dollars. Each day of continued violation shall constitute a separate offense.

Source:
Laws 1986, LB 894, § 16; R.S.1943, (1993), § 46-674.17; Laws 1996, LB 108, § 69; Laws 2000, LB 900, § 216.

46-656.64
Hearings; subject to review.

All hearings conducted pursuant to the Nebraska Ground Water Management and Protection Act shall be of record and available for review.

Source:
Laws 1975, LB 577, § 13; Laws 1984, LB 1071, § 10; R.S.1943, (1993), § 46-668; Laws 1996, LB 108, § 70.

46-656.65
Administration of act; compliance with other laws.

In the administration of the Nebraska Ground Water Management and Protection Act, all actions of the Director of Environmental Quality, the Director of Natural Resources, and the districts shall be consistent with the provisions of section 46-613.

Source:
Laws 1975, LB 577, § 16; Laws 1984, LB 1071, § 13; R.S.1943, (1993), § 46-671; Laws 1996, LB 108, § 71; Laws 2000, LB 900, § 217.

46-656.66
Appeal; procedure.

Any person aggrieved by any order of the district, the Director of Environmental Quality, or the Director of Natural Resources issued pursuant to the Nebraska Ground Water Management and Protection Act may appeal the order. The appeal shall be in accordance with the Administrative Procedure Act.

Source:
Laws 1975, LB 577, § 14; Laws 1984, LB 1071, § 11; Laws 1988, LB 352, § 78; R.S.1943, (1993), § 46-669; Laws 1996, LB 108, § 72; Laws 2000, LB 900, § 218.

46-656.67
Interrelated Water Management Fund; created; use; investment.

The Interrelated Water Management Fund is created. The State Treasurer shall credit to the fund, for the purpose of conducting studies to determine the cause of current or potential conflicts between ground water users and surface water appropriators, disputes over interstate compacts or decrees, or difficulties fulfilling the provisions of other formal state contracts and agreements, such money as is specifically appropriated and such funds, fees, donations, gifts, or services or devises or bequests of real or personal property received by the Department of Natural Resources from any federal, state, public, or private source, to be used by the department for the purpose of funding studies as described in this section. The department may use its budget authority to request appropriations specifically for the purpose of funding studies described in this section. The department shall allocate money from the fund for use by the department, by any state agency, board, or commission, or by any political

subdivision of the state, by agreement, or by private organizations or firms as may be contracted with by the department. Any money in the fund available for investment shall be invested by the state investment officer pursuant to the Nebraska Capital Expansion Act and the Nebraska State Funds Investment Act.

Source:
Laws 1996, LB 108, § 73; Laws 2000, LB 900, § 219.

46-675
Legislative findings and declarations.

The Legislature finds and declares that a permit system is necessary to protect Nebraska's ground and surface water resources and existing water users in situations where industrial users withdraw significant quantities of ground water from the aquifers of the state and in situations where such ground water is transferred from the water well site for use at another location.

Source:
Laws 1981, LB 56, § 1; Laws 1993, LB 131, § 33.

46-676
Terms, defined.

For purposes of the Industrial Ground Water Regulatory Act:

(1) The definitions found in section 46-656.07 are used;

(2) Department means the Department of Natural Resources; and

(3) Director means the Director of Natural Resources.

Source:
Laws 1981, LB 56, § 2; Laws 1996, LB 108, § 74; Laws 2000, LB 900, § 220.

46-677
Withdrawal of ground water for industrial purposes; permit required; when.

(1) Except as provided in section 46-678.01, (a) any person who desires to withdraw and transfer ground water from aquifers located within the State of Nebraska for industrial purposes shall, prior to commencing construction of any water wells, obtain from the director a permit to authorize such withdrawal and transfer of such ground water and (b) any person who prior to April 23, 1993, has withdrawn ground water from aquifers located in the State of Nebraska for industrial purposes may file an application for a permit to authorize the transfer of such ground water at any time.

(2) For purposes of this section, industrial purposes includes manufacturing, commercial, and power generation uses of water and commercial use includes, but is not limited to, maintenance of the turf of a golf course.

Source:
Laws 1981, LB 56, § 3; Laws 1993, LB 131, § 34; Laws 1993, LB 789, § 6; Laws 2002, LB 458, § 5. Effective date July 20, 2002.

46-678
Permit; application; contents.

(1) Applications for permits required by section 46-677 shall be on forms provided by the director and shall contain:

(a) A statement of the amount of ground water which the applicant proposes to use;

(b) A statement of the proposed use and whether the ground water will be transferred for use at a location other than the well site;

(c) A hydrologic evaluation of the impact of the proposed use on the surrounding area and on existing users;

(d) The date when the applicant expects to first use the ground water; and

(e) Such other relevant information as the director may deem necessary or desirable.

(2) Such applications shall be accompanied by an exhibit of maps showing the location, depth, and capacity of the proposed water wells.

Source:
Laws 1981, LB 56, § 4; Laws 1993, LB 131, § 35; Laws 1993, LB 789, § 7.

46-678.01
Withdrawal and transfer of less than 150 acre-feet; notice; metering.

Any person who desires to withdraw and transfer a total of less than one hundred fifty acre-feet of ground water per year from aquifers located in the State of Nebraska for industrial purposes to other property within the state which is owned or leased by such person shall provide written notice to the department and install a water meter or meters that meet the approval of the department. Such notice shall include the amount of the proposed transfer, the point of withdrawal, and the point of delivery and shall be published once each week for three consecutive weeks in a newspaper of general circulation in the county or counties in which the point of withdrawal is

located. The withdrawal and transfer may be made without a permit so long as (1) the property which includes the point of withdrawal and the property which includes the point of delivery are owned or leased by the same person, (2) the water is used by such person, and (3) a total of less than one hundred fifty acre-feet of ground water per year is transferred from all sources to the property which includes the point of delivery.

Source:
Laws 1993, LB 789, § 8; Laws 2000, LB 900, § 221.

46-679
Application; director; determination as to completeness.

Within thirty days of the receipt of an application made under section 46-677, the director shall accept the application as a completed application or return the application to the applicant as an incomplete application. If the application is deemed to be incomplete, the director shall inform the applicant as to the deficiencies in the application.

Source:
Laws 1981, LB 56, § 5.

46-680
Completed application; public hearing required.

After the director has accepted the application made under section 46-677 as a completed application, the director shall set a time and place for a public hearing on the application. The hearing shall be held within or in reasonable proximity to the area in which the water wells would be located. The hearing shall be scheduled within ninety days after the application is accepted by the director.

Source:
Laws 1981, LB 56, § 6; Laws 1993, LB 131, § 36.

46-681
Public hearing; evidence presented.

At the hearing provided for in section 46-680, the applicant shall present all hydrological data and other evidence supporting its application. All interested parties shall be allowed to testify and present evidence relative to the application.

Source:
Laws 1981, LB 56, § 7.

46-682
Applicant; agreement with other water users; filing.

The applicant may negotiate with any user of water in order to obtain an agreement whereby the user waives any cause of action against the applicant for damages or injunctive or other relief for interference with such water use, in exchange for financial payment, substitute water, or other compensation. The applicant shall file copies of any such agreements with the director who shall consider the agreements in determining whether to grant or deny a permit. Nothing in this section shall be construed to limit any power of eminent domain possessed by an applicant.

Source:
Laws 1981, LB 56, § 8.

46-683
Permit; issuance; consideration; conditions.

(1) The director shall issue a written order containing specific findings of fact either granting or denying a permit. The director shall grant a permit only if he or she finds that the applicant's withdrawal and any transfer of

ground water are in the public interest. In determining whether the withdrawal and transfer, if any, are in the public interest, the director's considerations shall include, but not be limited to:

(a) Possible adverse effects on existing surface or ground water users;

(b) The effect of the withdrawal and any transfer of ground water on surface or ground water supplies needed to meet reasonably anticipated domestic and agricultural demands in the area of the proposed ground water withdrawal;

(c) The availability of alternative sources of surface or ground water reasonably accessible to the applicant in or near the region of the proposed withdrawal or use;

(d) The economic benefit of the applicant's proposed use;

(e) The social and economic benefits of existing uses of surface or ground water in the area of the applicant's proposed use and any transfer;

(f) Any waivers of liability from existing users filed with the director; and

(g) Other factors reasonably affecting the equity of granting the permit.

(2) The director may grant a permit for less water than requested by the applicant. The director may also impose reasonable conditions on the manner and timing of the ground water withdrawals and on the manner of any transfer of ground water which the director deems necessary to protect existing users of water. The director

shall issue such written order within ninety days of the hearing.

Source:
Laws 1981, LB 56, § 9.

46-683.01
Permit; application to amend; procedures; limitation.

If during construction or operation a permitholder determines (1) that an additional amount of water is or will be required for the proposed use set forth in a permit issued pursuant to section 46-683 or (2) that there is a need to amend any condition set forth in the permit, the permitholder may file an application to amend the permit. Following a hearing conducted in the manner prescribed by section 46-680, the director shall issue a written order containing specific findings of fact either granting or denying the proposed amendment in accordance with the public interest considerations enumerated in section 46-683. An application to amend a permit shall not be approved if the amendment would increase the daily peak withdrawal or the annual volume by more than twenty-five percent from the amounts approved in the original permit.

Source:
Laws 1986, LB 309, § 3.

46-684
Permit; revocation; procedure; violation of terms of permit; director; powers and duties.

(1) A permit granted pursuant to section 46-683 shall be revoked, following a hearing conducted in the same manner as hearings conducted pursuant to section 46-680, if the director determines that the permitholder

has failed to exercise the right to withdraw ground water within three years of the date specified in the permit or for a period of three consecutive years thereafter.

(2) If it appears to the director that a permitholder has withdrawn more ground water than the amount specified in the permit or has violated any of the conditions specified in the permit, the director shall give written notice to the permitholder of the alleged violation.

Within thirty days following receipt of such notice, the permitholder may:

(a) File an application to amend the permit as provided in section 46-683.01;

(b) Request a hearing before the director; or

(c) Take appropriate measures to comply with the permit. If the permitholder fails to take action pursuant to subdivision (2)(a), (2)(b), or (2)(c) of this section, the director may issue an order requiring compliance with the permit and seek, if appropriate, a court injunction prohibiting further violations of the permit.

If the permitholder requests a hearing, the director shall within thirty days schedule a hearing within or in reasonable proximity to the area where the water wells are located. Within forty-five days following the hearing, the director shall issue an order containing specific findings of fact with reference to the alleged violation and directing the permitholder, if necessary, to cease and desist from further violations of the permit.

(3) Nothing in this section shall limit the penalty provisions of section 46-687.

Source:
Laws 1981, LB 56, § 10; Laws 1986, LB 309, § 4; Laws 1993, LB 131, § 37.

46-685
Order or decision; appeal by affected person.

Any affected person aggrieved by any order issued or final decision made by the director pursuant to the Industrial Ground Water Regulatory Act may appeal the order to the Court of Appeals. For purposes of this section, affected person means the applicant for a permit which is the subject of the director's order or final decision and any owner of an estate or interest in or concerning land or water whose interest is or may be impacted in a direct and significant manner by the director's order or final decision.

Source:
Laws 1981, LB 56, § 11; Laws 1988, LB 352, § 80; Laws 2001, LB 129, § 4.

46-686
Injured person; remedies available.

Any owner of an estate or interest in or concerning land or water, except a person who has signed an agreement filed with the director pursuant to section 46-682, may bring an action for damages or injunctive or other relief for any injury done to his or her land or water rights by the holder of a permit issued pursuant to section 46-683. Nothing in sections 46-675 to 46-690 shall be construed as limiting the right to resort to other means of review, redress, or relief provided by law.

Source:
Laws 1981, LB 56, § 12.

46-686.01
Withdrawal and transfer of less than 150 acre-feet; injured person; hearing; civil action; appeal; attorney's fees.

The director shall have jurisdiction over any ground water withdrawal and transfer made under section 46-678.01. Any person using ground water at the time a notice to transfer is filed under such section whose wells thereafter suffer an unanticipated decline in ground water levels may petition the director for a hearing. Such petition shall specifically set forth the cause and extent of the ground water decline as well as the nature and extent of any injury resulting from that decline. If at such hearing the injured party presents evidence showing that the ground water levels declined as a result of such transfer and shows the nature and extent of any resulting injury, the director may issue an order terminating or conditioning the transfer to eliminate any further injury. If the injured party prevails and an order is issued pursuant to this section, the order shall provide that the person filing the notice of transfer shall pay the costs of the department and of the injured party, including reasonable attorney's fees. The injured party may maintain a civil action against the person filing the notice of transfer to recover the costs of a hydrologic evaluation. The order of the director may be appealed to the Court of Appeals.

Source:
Laws 1993, LB 789, § 9; Laws 2000, LB 900, § 222.

46-687
Violation; penalty.

Any person who withdraws or transfers ground water in violation of the Industrial Ground Water Regulatory Act shall be guilty of a Class IV misdemeanor. Each day shall

constitute a separate offense in cases of continued violation.

Source:
Laws 1981, LB 56, § 13; Laws 1986, LB 309, § 5.

46-688
Director; rules and regulations.

The director may adopt and promulgate all rules and regulations necessary or desirable to secure compliance with sections 46-675 to 46-690. The director shall by regulation specify the contents and scope of the hydrologic evaluation required by section 46-678, taking into account the current state of hydrologic knowledge and techniques, and the factors for permit approval listed in section 46-683.

Source:
Laws 1981, LB 56, § 14.

46-689
Permitholder; subject to control area regulations.

Nothing in the Industrial Ground Water Regulatory Act shall be construed to exempt the holder of a permit issued pursuant to section 46-683 from any regulations adopted by a natural resources district pursuant to the Nebraska Ground Water Management and Protection Act for a control area designated before such permit has been granted.

Source:
Laws 1981, LB 56, § 15; Laws 1996, LB 108, § 75.

46-690
Act, how cited.

Sections 46-675 to 46-690 shall be known and may be cited as the Industrial Ground Water Regulatory Act. Any

reference in such act to sections 46-675 to 46-690 shall be construed to include section 46-683.01.

Source:
Laws 1981, LB 56, § 16; Laws 1986, LB 309, § 6; Laws 1993, LB 789, § 10.

46-691
Transfer off overlying land; when allowed; objection; procedure; natural resources district; powers and duties; Director of Natural Resources; duties.

(1) Any person who withdraws ground water for agricultural purposes, or for any purpose pursuant to a ground water remediation plan as required under the Environmental Protection Act, including the providing of water for domestic purposes, from aquifers located within the State of Nebraska may transfer the use of the ground water off the overlying land if the ground water is put to a reasonable and beneficial use within the State of Nebraska and is used for an agricultural purpose, or for any purpose pursuant to a ground water remediation plan as required under the Environmental Protection Act, including the providing of water for domestic purposes, after transfer, and if such withdrawal, transfer, and use (a) will not significantly adversely affect any other water user, (b) is consistent with all applicable statutes and rules and regulations, and (c) is in the public interest. For purposes of this section, domestic has the same meaning as in section 46-613.

(2) Any affected party may object to the transfer of ground water by filing written objections, specifically stating the grounds for such objection, in the office of the natural resources district containing the land from which the ground water is withdrawn. Upon the filing of such objections or on its own initiative, the natural resources

district shall conduct a preliminary investigation to determine if the withdrawal, transfer, and use of ground water is consistent with the requirements of subsection (1) of this section. Following the preliminary investigation, if the district has reason to believe that the withdrawal, transfer, or use may not comply with any rule or regulation of the district, it may utilize its authority under the Nebraska Ground Water Management and Protection Act to prohibit such withdrawal, transfer, or use. If the district has reason to believe that the withdrawal, transfer, and use is consistent with all rules and regulations of the district but may not comply with one or more other requirements of subsection (1) of this section, the district shall request that the Department of Natural Resources hold a hearing on such transfer.

(3) At the hearing, all interested persons may appear and present testimony. Agencies or political subdivisions of this state and the appropriate natural resources districts shall offer as evidence any information in their possession which they deem relevant to the purposes of the hearing. After the hearing, if the Director of Natural Resources finds that the withdrawal, transfer, or use of ground water is contrary to the requirements of subsection (1) of this section, he or she shall issue a cease and desist order prohibiting the withdrawal and transfer.

(4) The director may adopt and promulgate rules and regulations to carry out this section.

Source:
Laws 1995, LB 251, § 1; Laws 2000, LB 900, § 223.

46-691.01
Transfer off overlying land for domestic use; limitations; liability.

Any person other than a public water supplier as defined in section 46-638 may transfer ground water off the overlying land for the purpose of domestic use of ground water required for human needs as it relates to health, fire control, and sanitation if (1) the location and use of the water well and any pipeline or other means of conveyance are authorized by easement or other adequate property interest on all land on which such water well and pipeline or other means of conveyance are located and (2) the capacity of the water well or series of water wells connected together for such purposes does not exceed fifty gallons per minute. Such person may be liable for damages for interference with the use of ground water by another person only if the withdrawal of ground water for such domestic use unreasonably causes harm to another person through the lowering of the water table or by reducing artesian pressure.

Source:
Laws 2001, LB 472, § 1.

46-691.02
Transfer off overlying land for domestic use; applicability of section.

Section 46-691.01 applies to all such transfers and uses of ground water before, on, and after September 1, 2001.

Source:
Laws 2001, LB 472, § 2.

46-692
Wells; measuring devices; cost-share assistance.

(1) For purposes of this section:

(a) Measuring device means any accurate method used to measure total volume of water pumped or diverted annually; and

(b) Well means a water well to be used for other than domestic purposes which is capable of pumping more than fifty gallons per minute and which is located in the alluvial aquifer of the Republican River Basin as determined and delineated on a map provided by the Department of Natural Resources.

(2) It is the intent of the Legislature to appropriate five hundred thousand dollars each year for FY1998-99, FY1999-00, and FY2000-01 for a cost-share program to install measuring devices on wells in the alluvial aquifer of the Republican River Basin and on surface water diversion works from the Republican River and its tributaries. The money shall be appropriated to a separate account within the Nebraska Soil and Water Conservation Fund for cost sharing on the purchase and installation of measuring devices if every natural resources district covering any portion of the alluvial aquifer of the Republican River Basin has established by October 1, 1998, a program requiring the installation of measuring devices on a minimum of ninety percent of active eligible wells by June 1, 2001, and adopts and promulgates rules and regulations within a reasonable time governing the program.

(3) To be eligible for cost-share assistance under this section, a surface water diversion works must have a valid

surface water appropriation and a well must meet the definition of a well in subsection (1) of this section and the measuring device shall be purchased, installed, and operational by June 1, 2001. If eligible for cost sharing under this section, fifty percent of the cost of purchase and installation of the measuring device, up to a maximum state share of six hundred dollars per well or diversion works, may be provided through the cost-share program.

(4) Any owner or operator of a well upon which cost-share funds are expended under this section shall be responsible for reporting water use to the natural resources district in which the well is located in a manner prescribed by the natural resources district. Any owner or operator of a surface water diversion works upon which cost-share funds are expended under this section shall be responsible for reporting water use to the Department of Natural Resources in a manner prescribed by the department.

(5) If the requirements of subsections (2) and (3) of this section have not been met by June 1, 2001, the natural resources district shall remit to the state an amount equal to the cost-share assistance provided to the natural resources district under such subsections. Any owner or operator of a well upon which cost-share funds are expended shall not be responsible for any repayment requirements under this section.

Source:
Laws 1998, LB 1161, § 1; Laws 2000, LB 900, § 224.

No. 126, Original

In The

Supreme Court of the United States

STATE OF KANSAS,

Plaintiff,

v.

STATE OF NEBRASKA

and

STATE OF COLORADO,

Defendants.

BEFORE THE HONORABLE VINCENT L. MCKUSICK
SPECIAL MASTER

FINAL SETTLEMENT STIPULATION
VOLUME 3 OF 5

December 15, 2002

COCKLE LAW BRIEF PRINTING CO. (800) 225-6964
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TITLE 256 – REGULATIONS GOVERNING THE ADMINISTRATION OF THE RESOURCES DEVELOPMENT FUND

NEBRASKA ADMINISTRATIVE CODE

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

TITLE 256

RULES AND REGULATIONS GOVERNING THE ADMINISTRATION OF THE RESOURCES DEVELOPMENT FUND

Adopted 7-19-01

NEBRASKA DEPARTMENT OF NATURAL RESOURCES
TITLE 256 – REGULATIONS GOVERNING THE ADMINISTRATION OF THE RESOURCES DEVELOPMENT FUND

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NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: April 21, 1999
TITLE 256 DNR – ADMINISTRATION OF THE RESOURCES DEVELOPMENT FUND
Chapter 1 – GENERAL PROVISIONS

001 Purpose and Effect of Rules. These rules and regulations are adopted for the purpose of carrying out the provisions of the Nebraska Resources Development Fund Act. Under no circumstances shall these rules and regulations be construed as a limitation or restriction upon the exercise of any proper discretion that is vested in either the Director or the Natural Resources Commission, nor shall they in any event be construed to deprive the Director or the Commission of any exercise of powers, duties and jurisdiction conferred by law, nor to limit or restrict the amount or character of data or information which may be required for the proper administration of the Act.

002 Definitions. As used in these rules and regulations, the terms listed below shall have the meanings noted:

002.01 Act. "Nebraska Resources Development Fund Act" or "Act" shall mean Sections 2-1586, R.R.S., 1997; 2-1587, 2-1589, 2-1590, 2-1592, 2-1593, and 2-1595, R.S. Supp., 2000; and 2-1588 and 2-1594, as amended by LB 129, 97th Nebraska Legislature, 1st Session (2001), and any and all amendments, additions, or deletions which may be made thereto;

002.02 Applicant. "Applicant" shall mean any state agency or political subdivision applying for financial assistance under the Act;

002.03 Commission. "Commission" shall mean the Nebraska Natural Resources Commission created pursuant to Section 2-1504, R.S. Supp., 2000;

002.04 Department. "Department" shall mean the Nebraska Department of Natural Resources created pursuant to Sections 61-205 and 81-101 R.S. Supp., 2000;

002.05 Director. "Director" shall mean the Director of the Department of Natural Resources as provided in Section 81-102, R.S. Supp., 2000;

002.06 Fund. "Fund" shall mean the Nebraska Resources Development Fund created by Section 2-1587, R.S. Supp., 2000;

002.07 Governing Body. "Governing Body" shall mean the individual or group of individuals which are empowered by law to govern the business of an applicant;

002.08 Intangible Benefits. "Intangible Benefits" shall mean benefits, either primary or secondary, that cannot be expressed in monetary terms;

002.09 Political Subdivision. "Political Subdivision" shall mean any political subdivision of the State of Nebraska to which has been granted the authority to develop water and related land resources, including, but not limited to a natural resources district, irrigation district, public power and irrigation district, reclamation district, county, and any municipal corporation, village, or city, whether operating under home rule charter or under the general laws of the State of Nebraska;

002.10 Primary Benefits. "Primary Benefits" shall mean net values attributable to a project of increases in products and services and of reductions in costs, damages, or losses of primary beneficiaries;

002.11 Program and/or Project. "Program and/or Project" shall mean any structural or non-structural undertaking for which assistance from the Fund is requested. Unless the context otherwise requires, no

distinction is intended between such terms and they may be used interchangeably for purposes of administration of these rules and regulations;

002.12 Project Engineer or Project Director. "Project Engineer or Project Director" shall mean any engineer, engineering firm, or other person, persons or firm retained by the sponsor to provide professional engineering or other professional or technical services during the planning, design, and construction of the project;

002.13 Secondary Benefits. "Secondary Benefits" shall mean net values to persons other than primary beneficiaries as a result of economic activity induced by or stemming from a project;

002.14 Sponsor. "Sponsor" shall mean the state agency or political subdivision primarily responsible for the development, administration, operation and maintenance of a program or project for which assistance from the Fund is requested;

002.15 State Agency. "State Agency" shall mean any agency, board, commission or other office of state government to which has been granted the authority to develop the state's water and related land resources.

002.16 Tangible Benefits. "Tangible Benefits" shall mean benefits, either primary or secondary, that can be expressed in monetary terms.

003 Types of Assistance. Eligible applicants for financial assistance from the Fund may receive such assistance in the form of grants, loans, or through the direct acquisition by the state of interests in eligible programs and projects. The form of assistance which may be allocated to a program or project shall be determined utilizing the following criteria:

003.01 Grants. Allocations from the Fund may be made as grants to applicants when it is determined that such an allocation will not be reimbursed from revenue or receipts and when the program or project, or separable portion thereof, appears to be of general public benefit thereby making reimbursement of such money from local tax funds inappropriate or impossible, or when the funds are intended for a state or local contribution to a program or project requiring such contribution to meet the requirements for a matching federal grant. If only a portion of the project meets the above criteria, only that portion will be eligible for a grant. In determining the appropriateness of a grant the considerations of the Director and the Commission shall include the extent of the area over which the anticipated benefits will accrue and whether equitable distribution of the costs of the program or project can be accomplished without a grant.

003.02 Loans. Allocations may be made from the Fund as loans to applicants for any program or project or any part thereof consistent with the purposes of the Act which will directly generate revenue or receipts or which can be anticipated to culminate in a program or project which will generate revenue or receipts, or which would not generate revenue or receipts but would be of general public benefit to the applicant making repayment from local tax funds appropriate.

003.03 Acquisition of State Interests. Interests in water and related land resources projects may be acquired by the Department, upon approval by the Commission, in the name of the state with moneys from the Fund when the public benefits obtained from the project or a part thereof are statewide in nature and when associated costs are determined to be more appropriately financed by other than a local organization. The Department, upon approval by the Commission, may also acquire interests in water resources

projects in the name of the state to meet future demands for usable water.

003.04 Allocations to State Agencies. No grant or loan shall actually be made to state agencies for programs or projects determined to be eligible for funding unless:

003.04A The allocation is for the purpose of reserving land for a future resource development project, or;

003.04B The allocation has been approved by the Legislature by earmarking appropriations to the Fund for that purpose.

004 Eligible Projects. Moneys from the Fund may be used to (a) participate in locally sponsored projects; (b) participate in projects sponsored or financially assisted by the federal government; and, (c) finance state-sponsored projects. The types of projects and programs eligible for funding and the respective forms of such funding are as follows:

004.01 Structural Measures. Structural measures which may be eligible for allocations from the Fund in the form of grants and/or loans include measures designed for flood control; pollution abatement; fish and wildlife enhancement and preservation; outdoor recreation; irrigation development; irrigation rehabilitation; groundwater recharge; water supply for any beneficial use including domestic, agricultural, and manufacturing uses; streamflow augmentation; stream bank stabilization; and erosion and sediment control.

004.02 Non-structural Measures. Non-structural measures which may be eligible for financial assistance from the Fund in the form of grants and/or loans include: Flood damage reduction; fish and

wildlife enhancement and preservation; outdoor recreation; reservation of lands for future resources development projects; and other water and related land resources programs. Projects whose primary purposes are research or data gathering shall not be eligible for assistance.

005 Interest Rate. The rate of interest payable on loans from the Fund shall be determined annually prior to October 1 of each fiscal year. Except as otherwise provided herein, such rate of interest shall be computed by averaging the yields, as determined by the "Moodys" rating and classification system, of AAA State-Local Bonds issued nationally for the three previous fiscal years and by rounding off such average to the nearest one-eighth percent. For loans for the rehabilitation or betterment of surface water irrigation projects, the Commission may reduce the rate of interest to not less than three percent if (1) the amount of the loan is $500,000 or less; (2) the repayment period is ten years or less; (3) the project sponsor has not previously received a reduced interest loan from the Fund; and (4) the Director and the Commission determine that the proposed project will make water available for public use or will provide other public benefits. The rate of interest payable on a loan for a specific program or project shall be the rate in effect for the fiscal year in which the Director recommends approval of the program or project for a loan allocation. Such rate shall remain in effect throughout the repayment period determined to be appropriate for such program or project.

006 Deferred Interest. When, in the Commission's judgment, a construction or preconstruction period (not exceeding five years next following the initial allocation) is justified, no payment on the interest or principal on such

loans is required during that period, but interest shall begin accruing on all loan allocations immediately with disbursement. Repayment shall commence no later than one full year following completion of project construction. Any deferred interest may be apportioned over the repayment period. The repayment period will not exceed the project life or fifty years, whichever is less.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: April 21, 1999
Title 256 – DEPARTMENT OF NATURAL RESOURCES

Chapter 2 – APPLICATION PROCEDURES AND REQUIREMENTS

001 Filing Fees. No filing fee is required to accompany any project proposal or any application for assistance under the Act.

002 Filing Location. All project proposals, applications or other documents or instruments supplied by an applicant in connection with a request for financial assistance from the Fund shall be filed with the Director.

003 Application Procedure. It is recommended that each formal application for financial assistance from the Fund be preceded by a Project Proposal. An applicant may include the cost to the applicant of the feasibility report, the contents of which are specified by section 2-012 as a portion of the project costs of any project for which funding in an amount of less than $100,000 is requested. Such cost may also be included as a portion of the project costs of any project for which funding in excess of $100,000 is

requested if, and only if, a project proposal has been previously submitted.

004 Information Required in Project Proposal. If the applicant decides to submit a Project Proposal, thirty-five copies shall be filed unless otherwise directed by the Director. The Project Proposal shall include the following information:

004.01 Name and address of applicant;

004.02 Applicant's authorized representative and his name and address;

004.03 A description of the proposed project and the desired accomplishments;

004.04 The primary purpose of the proposed project;

004.05 Other purposes of the proposed project;

004.06 A statement of urgency and need for the proposed project;

004.07 The applicant's most recent financial statement or budget document;

004.08 The estimated costs of the project;

004.09 The expected benefits from the proposed project;

004.10 The anticipated funding or other assistance from other sources;

004.11 The type and approximate amount of state assistance to be requested;

004.12 A discussion of probable environmental effects which shall include the applicant's plans to determine the potential impact of the proposed project on any threatened or endangered species or the critical

habitat of any such species. Copies of any applicable correspondence with the Game and Parks Commission shall be included, if available.

004.13 The estimated schedule of construction of the project, and;

004.14 A discussion of alternatives for accomplishing the purpose of the project.

004.15 An indication whether liability insurance or contractor bonding will be required.

005 Details of Project Proposals. The information required in Project Proposals shall be in such detail as directed by the Commission and Director. Appropriate guidelines for assistance in Project and Program Proposal preparation shall be prepared and distributed to all state agencies or political subdivisions expressing a need for such assistance.

006 Omissions in Project Proposal. If the Commission or the Director desire additional information on a Project Proposal, it will so notify the applicant. If the Director determines that a Project Proposal is not complete, or if additional information is required, the Director will notify the applicant of such omissions. The applicant shall be expected to correct any such omission or provide any additional information requested within 60 days following notification.

007 Review by Commission and Director. Upon receipt of a properly completed Project Proposal, the Director shall review it forthwith, make a preliminary evaluation, and advise the Commission within 90 days: (1) that the Director recommends the Sponsor be authorized to proceed with preparation of a formal application and feasibility report;

or (2) that, based upon the submitted proposal, the Director does not recommend the Sponsor prepare an application and feasibility report. The reasons for any negative recommendation shall be stated. If the Director recommends proceeding, he or she shall also indicate the type of funding for which the project may be eligible and a cost-share range within which a funding recommendation is probable if the project is later determined to be eligible for funding. The Director may make any additional recommendations regarding the contents of the formal application and feasibility report he or she deems appropriate. Any such recommendations shall be forwarded to the Sponsor by the Department along with an invitation to the Sponsor to appear before and comment on the Director's recommendations to the Commission. Upon receipt and consideration of the Director's recommendations and the Sponsor's comments, if any, the Commission shall determine whether the Director is to advise the applicant: (1) that it is authorized to proceed with preparation of a formal application and feasibility report; or (2) that it is recommended that an application and feasibility report not be prepared; the reasons for a negative recommendation shall be stated.

008 Public Hearing and Notification. Except for projects requesting less than $100,000 from the Fund, the applicant shall conduct at least one public hearing on all aspects of the proposed project or program prior to submission of the formal application and feasibility report. Notice of the hearing shall be provided to the general public by publication, at least ten days prior thereto, in a newspaper or newspapers of general circulation within the project or program area. A copy of such notice will be provided to the Director. Information gained from the

hearing, including a summary of testimony presented, is to be forwarded with the application.

009 Time to Complete Formal Applications. Upon notice by the Director of the Commission's findings on the Project Proposal, the Applicant shall be given a period of one year to complete a formal application and feasibility report. If an application is not completed within one year, or within such additional time as the Commission may grant for good cause shown, the Commission may request the filing of a new Project Proposal.

010 Form of Formal Application and Feasibility Report. Applicants for financial assistance from the Fund shall file twenty-five copies of an application and feasibility report. Such application shall contain a specific request for each type of assistance applied for in a specified amount. The contents of such application and feasibility report shall include all items required by sections 2-011 to 2-018 unless otherwise authorized by the Director. Feasibility reports shall be prepared at the initial expense of the applicant and with the assistance of licensed engineers, financial consultants, economists, recreation planners, wildlife specialists, or other consultants if deemed necessary by the applicant or by the Director following his or her evaluation of the Project Proposal. Costs of preparation of the feasibility report incurred by the applicant may be included if consistent with section 2-003.

011 Contents of Formal Application. Except to the extent that such information has previously been indicated through submission of a Project Proposal, the formal application shall include the following information:

011.01 A cover letter from the applicant submitting the feasibility report, the contents of which are specified by section 2-012;

011.02 The name and address of the applicant's authorized representative;

011.03 An outline of the initial development and background of the project;

011.04 An explanation of the need and urgency of the project;

011.05 A description of project goals and purposes;

011.06 A general discussion of alternative plans considered including a comparison of the technical, economic, and environmental aspects of each alternative with the plan chosen; and

011.07 A statement whether money from other sources is available or has been sought.

012 Contents of Feasibility Report. Contents of the feasibility report are to be of sufficient detail to demonstrate the technical, economic and financial feasibility, as well as the legal soundness, of the proposed project. Additionally, the expected positive and adverse environmental and ecological consequences of the project shall be therein demonstrated. The extent of detail necessary in the feasibility report will depend upon the type, purpose, and complexity of the project. Upon completion of any project proposal review, the Director will, to the extent deemed necessary, advise the applicant as to:

012.01 The criteria utilized to evaluate the technical, economic, financial, legal, and environmental aspects of the project;

012.02 The informational detail to be contained in the feasibility report.

013 Technical Feasibility.

013.01 A structural project shall be considered technically feasible when it can and will be designed, constructed, and operated to accomplish the purpose(s) for which it was planned utilizing accepted engineering and other technical principles and concepts. Technical data and information to be provided in the feasibility report should include, but is not limited to, the following:

013.01A A detailed discussion of the plan of development selected for the project;

013.01B A description of all field investigations made to substantiate the feasibility report;

013.01C Maps, drawings, charts, tables, etc., used as a basis for the feasibility report;

013.01D A description of the water and land rights associated with the project and pertinent water supply and water quality information, if appropriate;

013.01E A detailed discussion of each component of the final plan preparation including, when applicable:

013.01E1 Required geologic investigation;

013.01E2 Required hydrologic data;

013.01E3 Design criteria for final design including, but not limited to, soil mechanics, hydraulic, hydrologic, structural, embankments and foundation criteria.

013.02 A non-structural project shall be considered to be technically feasible when it can and will be designed and carried out to accomplish the purpose(s) for which it was planned. Data necessary to establish the technical feasibility should include, but is not limited to the following:

013.02A A detailed discussion of the plan of development designed for the project, including techniques to be utilized in all aspects of the project;

013.02B A description of field or research investigations utilized to substantiate the project conception;

013.02C A description of the water and/or land rights necessary for project continuation, if applicable;

013.02D A discussion of the anticipated effects, if any, of the proposed project upon the development and/or operation of existing or envisioned structural measures including a brief description of any such measure.

014 Economic Feasibility. Except as otherwise specified by subsection 014.04 or subsection 014.05 of this section, a project is economically feasible if primary, tangible benefits exceed project costs. In addition, for projects for which $100,000 or more is requested from the Fund, each project's purpose in a multi-purpose project must provide benefits equal to or greater than its separable or specific cost as specified by the Director and there must be no known means of accomplishing the same purpose or purposes more economically. The Director and the Commission may also require that separable project features or increments have benefits which equal or exceed their

costs. All costs and benefit data reported by the applicant will be based upon current data and sources for all data must be documented. Certain commodity prices, recreation benefit prices, and wildlife prices will be prescribed by the Director. The Director may also prescribe other cost and benefit information necessary for completion of the feasibility report. The period of analysis for economic feasibility studies shall be fifty (50) years or the life of the project, whichever is less.

014.01 Cost Information. The report shall include all relevant cost information including, but not limited to, all actual or anticipated costs for the feasibility study, the engineering and inspection costs, capital construction costs, annual operation and maintenance costs, and annual replacement costs. Cost information shall also include the estimated construction period as well as the estimated project life.

014.02 Benefit Information. Only primary tangible benefits may be counted in providing the monetary benefit information. In a multi-purpose project, the benefits will be estimated for each purpose and displayed by year for the project life. Intangible and secondary benefits of the proposed project or program should be described for consideration and evaluation by the Director and the Commission. Benefit measurement techniques and criteria shall be provided to the applicant by the Director.

014.03 Cash Flow Stream. All benefit and cost data will also be presented in a table form to indicate the annual cash flow for the life of the project, not to exceed 50 years. A form for so indicating the annual cash flow shall be supplied by the Director.

014.04 Rate-of-Return on Investment. The cost and benefit data expressed in the cash flow stream will be

utilized by the Director to calculate the rate-of-return on the investment. The rate-of-return on the investment is the discount rate applied to future benefits and costs at which costs and benefits become equal and the net present worth of the project cash flow is zero. The Commission may prescribe a minimum rate-of-return for a project to be considered economically feasible.

014.05 Other Methods. In the case of proposed programs or projects for which there is no generally accepted method for calculation of primary, tangible benefits, the economic feasibility of such program or project shall be demonstrated by such method as the Director and the Commission deem appropriate.

015 Financial Feasibility. A project is financially feasible if sufficient funds can be made available to complete the project, and if sufficient annual revenues can be obtained to repay the reimbursable costs and to operate, maintain, and replace the project. When a loan is involved, financial feasibility requires assurance that the projects can be adequately operated, maintained, and replaced and that the loan can be repaid during the repayment life of the project. Financial data supplied by the applicant shall include the applicant's most recent financial statement, budget document or other documentation necessary to illustrate the following:

015.01 The legal limit of the rate of taxation by the applicant and the rate currently being levied;

015.02 The limit of property that can be locally taxed by the applicant;

015.03 The level and trend of actual valuation;

015.04 The rate of local delinquency;

015.05 The legal limit of revenue and general obligation bond indebtedness;

015.06 Any debts, including bonded indebtedness and those resulting from contractual or other obligations.

If a loan is requested, applicant shall also supply a complete year-by-year repayment schedule in such detail as directed by the Director.

016 Environmental Acceptance. A project is considered to be environmentally acceptable when:

016.01 The Director has found that the project will not jeopardize the continued existence of any threatened or endangered species or result in the destruction or modification of the critical habitat of any such species; and

016.02 The plan of development minimizes, in a manner satisfactory to the Director, any adverse impacts on the natural environment and adequately addresses existing cultural resources.

In addition to any proposed mitigation measures, if applicable, all aspects of the proposed project which can be anticipated to result in environmental enhancement shall be considered in determining whether the plan of development does minimize adverse impacts. To assist the Director in determining environmental acceptance, the applicant will demonstrate the probable environmental and ecological consequences of the project by addressing all areas of study identified on the environmental acceptance form (NRC/NRDF Form 02Ev1).

017 Federally Assisted Projects. When assistance from the Fund is requested for participation in a project planned by an agency of the federal government, the federally

prepared plan of work can be submitted by the applicant for the purpose of complying with Sections 2-013, 2-014, and 2-016 and shall be submitted at the request of the Director. The Director does, however, reserve the right to reject all or a portion of any such plan of work on the grounds that the information provided therein is insufficient or inadequate for full evaluation of the proposed project's eligibility for assistance from the Fund.

018 Required Legal Data. The applicant shall assure the Director and the Commission that all legal requirements have or can be met prior to the allocation of any funds for the proposed program or project. Legal data submitted by the applicant in the feasibility report shall include the following:

018.01 Citation(s) to the legal authorities relied upon by the applicant to undertake or participate in the proposed program or project.

018.02 An explanation, with appropriate documentation of legal authorities, of the applicant's intention to finance that part of the project or program for which assistance from the Fund is not requested.

018.03 A showing that the applicant has or can acquire all necessary land rights and water rights.

018.04 Copies of any available proposed or executed contracts for construction or consultant services necessary for construction of the proposed program or project and included as part of the total cost of the project.

018.05 A listing of any permits, licenses, or other approvals required for the proposed project, their current status, and estimated schedule for compliance.

018.06 An explanation of the sponsor's plan to require consultants, contractors, and sub-contractors to obtain liability insurance or bonding to ensure the proper design and construction of the project.

018.07 An analysis of the sponsor's potential liability for damages from the project, including dam failure, overflow, or seepage of water and an explanation of the sponsor's plan to protect itself from any such liability.

018.08 A certified copy of a resolution of the applicant requesting financial assistance from the Department and containing a finding that the applicant cannot finance the project from other available state or federal sources.

018.09 Such other information, plans, and specifications as are requested by the Director or the Commission and which are reasonably necessary for an adequate understanding of the project.

018.10 A notarized statement executed by the applicant's official representative that the facts contained in the application are true and correct to his or her best knowledge and belief.

019 Omissions in Application. If an application submitted to the Director is not complete or if additional information is required, the Director will so notify the applicant. If the application is not completed within 90 days after the notice, unless the Director extends this time for good cause shown, the Director will return the application to the applicant without making any findings on the application and without prejudice to the submission of a new application at any future time.

020 Use of Department Data. Any pertinent data of the Department made available to applicants for use in

preparing applications and feasibility reports will be furnished at cost.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: April 21, 1999
Title 256 – DEPARTMENT OF NATURAL RESOURCES

Chapter 3 – ACTION BY THE DIRECTOR

001 Review and Report by the Director. On receipt of a completed application and feasibility report required by Chapter 2 of these rules and regulations, the Director shall review the application and feasibility report and shall, within six months of receipt, prepare a report containing his or her findings and recommendations with respect to the application and file such report with the Commission. Copies of the Director's report will be furnished to the applicant. The Director's report shall include the following items:

001.01 A recommendation of approval or rejection of the program or project for funding eligibility.

001.02 If approval is recommended, a recommendation that the allocation be made in the form of a grant, loan, acquisition of state interest, or combination thereof.

001.03 If a program or project is recommended for loan assistance, a recommendation of the appropriate repayment period.

001.04 A recommended degree of assistance for each type of allocation recommended by the Director which shall be developed with assistance from a subcommittee of the Commission's Program Committee.

001.05 Any conditions which the Director recommends be placed on project design, construction, operation, or maintenance to ensure the consistency of the project with the Act and with other state policies, plans and programs.

002 Committee Findings and Public Hearings. To assist the Director in making his or her review and report, the Director may refer the application and feasibility report, or any parts thereof, to such review committees as he or she may establish. In addition, the Director may, at his or her discretion, conduct one or more public hearings at such location(s) as he or she shall choose for the purpose of receiving public testimony on all aspects of the proposed program or project. The record of any such public hearing shall constitute a part of the Director's report to the Commission.

003 Considerations in Passing on Applications. In passing on applications, the Director shall consider:

003.01 The needs of the area to be served by the program or project and the benefit to be received from the program or project by the area served.

003.02 The availability of revenue to the applicant from all sources.

003.03 Whether the program or project is of such general public benefit that state financial assistance is justified.

003.04 The relationship of the program or project to the overall statewide water and related land needs.

003.05 Other factors relating to the nature of the project and the appropriate level of financial assistance.

004 Required Findings of Fact. Prior to making any report to the Commission recommending approval of a program or project for funding eligibility, the Director shall make the following findings of fact:

004.01 The plan does not conflict with any existing Nebraska State land plan.

004.02 The proposed program or project is technically, economically, and financially feasible based upon standards contained within these rules and regulations or otherwise adopted and supplied to the applicant by the Commission or the Department.

004.03 The plan for development of the proposed program or project is satisfactory.

004.04 The plan of development minimizes any adverse impact on the natural environment.

004.05 The applicant is qualified, responsible, and legally capable of carrying out the program or project.

004.06 In the case of a loan, the borrower has demonstrated the ability to repay the loan, and there is assurance of adequate operation, maintenance, and replacement during the repayment life of the project.

004.07 The plan considers other plans and programs of the state in accordance with the provisions of Sections 84-135, Reissue Revised Statutes of Nebraska, 1994, and resources development plans of the political subdivisions of the state.

004.08 The project will not jeopardize the continued existence of any threatened or endangered species or result in the destruction or modification of the critical habitat of any such species.

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LAST ISSUE DATE: April 21, 1999

Title 256 – DEPARTMENT OF NATURAL RESOURCES

Chapter 4 – COMMISSION ACTION AND REQUIREMENTS

001 Action on the Report of the Director. Unless the Commission requests additional information from the applicant, it shall no later than its second regular meeting following submission of the report by the Director, act to approve or reject the findings of fact made by the Director pursuant to section 3-004 and the recommendations of the Director; provided, however, that no action shall be taken until a delegation composed of Commission members has visited the project site and reported the results of its tour to the Commission or the appropriate committee of the Commission. Action on recommendations made by the Director pursuant to subsections .01 and .02 of section 3-001 shall be in accordance with such recommendations unless action to the contrary is approved by each Commission member eligible to vote on the specific recommendation under consideration. A Commission member shall be ineligible to participate in the action of the Commission concerning an application for a grant or a loan only if such member is a member of the governing body or otherwise represents the applicant for financial assistance. All Commission members shall be eligible to vote on programs and projects involving state acquisition of interests in projects pursuant to Section 2-1590, R.S. Supp., 2000. If the Commission determines, following review of the application, feasibility report, and the Director's report, that the proposed program or project is eligible for financial assistance from the Fund, the Commission shall determine a tentative dollar figure for such assistance.

Tentative allocations shall also be established for each separable component of the project, as determined in accordance with section 4-007. In establishing its tentative allocations, the Commission may take into consideration the recommendations of the Director pursuant to subsection .04 of section 3-001, the nature of the project and the factors associated with it, the total amount of money available in the Fund, and the number of and total tentative dollar allocations for other programs and projects previously determined eligible. No tentative grant allocation shall exceed an amount equal to seventy-five percent (75%) of the portion of the estimated project costs which the local sponsor would be required to provide if financial assistance from the Fund was not available. The Commission may vary the maximum allowable cost-share rate for different categories of projects. No tentative loan allocation or combination loan and grant allocations shall exceed an amount equal to ninety percent (90%) of such portion of the estimated project costs.

002 Project Totals Exceeding Balance in Fund. Although the total of previously approved allocations exceeds the amount of funds then available in the Fund, the Commission may approve the eligibility of additional projects and establish tentative dollar allocations for such projects if such projects are otherwise eligible for financial assistance and if such approval and tentative allocations are otherwise consistent with state law. Notwithstanding any such approval, a sponsor shall not under any conditions be entitled to reimbursement for any project costs until funds have been apportioned and set aside in accordance with sections 4-008 or 4-009 for reimbursement of costs incurred by the sponsor on such project. Costs paid, accrued or authorized by a sponsor prior to funds being set aside

for such projects and costs paid, accrued or authorized by a sponsor for portions of project development in excess of those portions for which funds have been set aside, including application and engineering costs, shall be incurred at the risk of the sponsor and such sponsor shall not be entitled to reimbursement of such costs at any time without specific Commission approval for such reimbursement. Such costs may, however, be used by the sponsor to satisfy in whole or in part the sponsor's share of the total costs of the project if funds for remaining project costs are later apportioned and set aside for such project in accordance with sections 4-008 or 4-009.

003 Annual Availability of Funds. Regardless of the status of the Fund at the time of Commission approval of the eligibility of a project, the extent, if any, to which financial assistance will be provided to such project in any one fiscal year shall be in accordance with and contingent upon the availability of funds and Commission action apportioning and setting aside funds for such project in such fiscal year in accordance with sections 4-008 or 4-009.

004 Continued Funding. In order to assure continued funding of projects with no separable components and of separable project components which are not further separable, the Commission, when it first apportions and sets aside in accordance with sections 4-008 or 4-009 funds for such project or project component, shall set aside an amount equal to the appropriate percentage of the total cost of the project or the component even if it is not anticipated that all of such funds could be expended during the next ensuing fiscal year. Funds thus apportioned and set aside shall, as soon as costs have been incurred by the sponsor subsequent to such apportionment, remain set aside and be committed for such project or project

component until the sponsor has received all reimbursement to which it is entitled unless:

004.01 The project is abandoned or significantly delayed;

004.02 The Commission has reasonable grounds for concern that the project or any portion of it may not be completed due to public opposition, litigation, or the loss of other state, local or federal funds needed to complete the project;

004.03 The Department fails to receive a reappropriation of unexpended funds;

004.04 The appropriation for the Resources Development Fund is reduced by subsequent legislative act; or

004.05 The Commission determines the project no longer meets the criteria for funding eligibility contained in the Resources Development Fund Act or the Commission's rules and regulations.

If the Commission determines at any time that any of these conditions have occurred, any funds apportioned and set aside for the project which have not been disbursed may be deemed by the Commission and the Department to be no longer apportioned and set aside.

005 Funding Preferences. In order that the maximum practicable assurance of continued funding may be provided to sponsors of uncompleted projects which have previously been apportioned funds for one or more separable components, preference shall be given such projects and project components whenever funds are apportioned and set aside in accordance with section 4-008 or section 4-009.

006 Determination of Fiscal Year Financial Needs.

006.01 No later than March 31 of each year each sponsor willing to utilize and capable of utilizing either an initial or an additional apportionment of funds for a project which has been determined eligible for funding shall submit a report to the Director indicating as follows:

006.01A If the project has no previously identified separable components and no request is made for identification of any such components, the report shall indicate the estimated time schedule for beginning and completing the project.

006.01B If the project has separable components, the report shall indicate the component or components for which the sponsor is requesting an apportionment and the estimated time schedule for commencing and completing such component or components.

006.01C If desired by the sponsor, the report may also include a request for the identification of separable components for a project with no previously identified separable components or for the separation of one or more previously identified separable components into additional separable components. Any such request shall be accompanied by an estimate of the costs for completing all separable components for which identification is requested. For those components for which apportionment of funds is desired, the information required by part B of this subsection shall also be provided.

006.01D The extent of any opposition to completion of the project, or any separable component, including whether any lawsuits to prevent its completion have been instituted or are anticipated, whether any problems are being experienced or are anticipated in

obtaining sufficient funds to meet the sponsor's financial obligations for the project, and whether any other factors exist-which may affect the sponsor's ability to complete the project.

007 Separable Components. If a project plan provides that development of the project will take place on two or more land areas not contiguous to each other, the project portion planned for each such land area shall constitute a separable component of the project. Projects for which total project development will take place all on one contiguous land area and separable components of projects of the type described above may also have separable components. A project component shall be deemed to be any distinguishable phase of project development including such phases as land rights acquisition, project construction, and related facilities development. The extent to which such components constitute separable components for any project shall be determined by the Commission after consultation with the Director and the sponsor. In the event that any project is determined to have separable components, the Commission shall take action to identify such separable components and to determine the estimated costs of completing each such component.

008 Apportioning and Setting Aside Funds. Prior to July 1 of each year the Commission shall apportion and set aside available funds for projects and project components eligible for funding assistance. In making such apportionments, the Commission shall consider the following:

008.01 Whether it is reasonable to expect that each project or project component for which funding is requested is capable of being commenced within the next ensuing fiscal year;

008.02 Whether any of the projects or project components proposed for funding by the sponsors could, in the opinion of the Commission, be delayed without significant adverse effects on the total project;

008.03 Whether there are reasonable grounds for concern that the project, or portions of it, may not be completed. Reasonable grounds for concern shall include, but not be limited to, opposition to completion of the project including current or anticipated lawsuits or the unavailability or loss of local, federal, or other state funds needed to complete the project;

008.04 The funding preferences established in section 4-005;

008.05 Each project's rate-of-return on the investment;

008.06 The water and related resources needs addressed by each project;

008.07 The economic impact of each project on the local and/or regional economy;

008.08 The environmental impact of each project;

008.09 The support for or opposition to each project;

008.10 The urgency of need for each project;

008.11 The extent of benefit provided by each project; and

008.12 How to make the most efficient utilization of the available funds.

Prior to the Commission's action apportioning and setting aside funds for a given fiscal year, the Department shall invite the sponsors of all projects for which funding has been requested for that fiscal year to appear before the

Commission to address the manner in which their projects relate to the factors to be considered by the Commission.

009 Adjustments in Apportionments. A sponsor may at any time during the fiscal year submit reports containing an update of the information contained in the report submitted in accordance with section 4-006. A sponsor of a project for which no report was submitted in accordance with section 4-006 may also at any time submit a report containing the information required by such section. At the first Commission meeting following August 1, November 1, and February 1 of each year, the Commission shall review all such reports, if any, which have been submitted since the last such review, and any other relevant information available to it and shall, if appropriate and consistent with the funding preference established in section 4-005, make adjustments in the amount apportioned and set aside for any project for that fiscal year. No amount previously apportioned and set aside in accordance with sections 4-008 shall be decreased unless:

009.01 The sponsor has indicated a decrease in needs;

009.02 The Commission, based on information contained in the sponsor's report submitted in accordance with section 4-006 or other information available to it, finds that there are reasonable grounds for concern that the project or any separable component may not be completed;

009.03 The project is abandoned or significantly delayed;

009.04 The Department fails to receive a reappropriation of unexpended funds;

009.05 The appropriation for the Resources Development Fund is reduced by subsequent legislative act, or;

009.06 The Commission determines the project no longer meets the criteria for funding eligibility contained in the Resources Development Fund Act or the Commission's rules and regulations.

In case of any such findings, the Commission may modify, suspend or revoke any previous action to apportion and set aside funds for the project or any separable component. Provided, however, any action to modify, suspend, or revoke any previous apportionment shall not affect the sponsor's right to reimbursement for costs which it has incurred or for which it has become legally obligated prior to such Commission action. In addition, such action shall not affect the sponsor's right to reimbursement for the cost of land or interests in land acquired through condemnation actions commenced prior to the Commission action to modify, suspend, or revoke an apportionment.

010 Limitation on Reimbursements. A sponsor shall not be reimbursed during any fiscal year in any amount in excess of the amount apportioned and set aside for the sponsor's project in accordance with sections 4-008 and 4-009.

011 Review and Approval of Final Plans. Prior to the actual disbursement of any funds for construction for the project or for any portion thereof, the Director shall review the final plans for the proposed program or project or the portion for which funds are requested. If it appears during such review or during any prior or subsequent review or inspection of the project plans or construction, or during any review of project cost information that:

011.01 The plans and specifications for the project are not being followed;

011.02 The plan for development or any work performed on the project are not based on sound technical principles or practices;

011.03 The project or any portion thereof no longer meets the criteria for funding eligibility contained in the Resources Development Fund Act or the Commission's Rules and Regulations; or

011.04 There is or has been non-compliance with any of the terms of the contract between the Sponsor and the Department;

the Director shall immediately bring such variances to the Sponsor's attention and may refuse to disburse any funds for the project until such time as the variances are corrected and the project is brought into conformance with all appropriate standards.

012 Limitation on Allocation. The amount actually disbursed for a program or project, or a separable component of a project, shall not exceed the dollar amount of the tentative allocation for the program, project or separable component approved by the Commission pursuant to section 4-001 or a dollar amount equal to the same percentage of the actual project costs as the tentative allocation represented to the estimated project costs, whichever is less, without specific Commission approval; except that funds apportioned and set aside for one separable component but not disbursed may be used to reimburse the Sponsor for the costs of another separable component even though such reimbursement may exceed the amount apportioned and set aside for that component if necessary in accordance with section 4-002 to achieve or maintain

the appropriate ratio between eligible project costs paid by the Sponsor and those paid by the Department.

013 Contractual Arrangements. State funds will not be advanced to any applicant pursuant to an approved loan or grant until a contract between the applicant and the Department setting forth terms and conditions of such loan or grant has been executed.

014 Disbursements. The Director shall disburse, no more often than once each month, such funds from those apportioned and set aside to a program or project as are necessary to reimburse, in the proper proportion, all eligible costs incurred by the applicant in carrying out the program or project since the next preceding disbursement, if any. All such costs shall be documented by the applicant in such manner as is directed by the Director prior to the disbursement of any funds. In the event that a program or project has been approved for combination grant and loan allocations, each disbursement shall, unless otherwise specified by the Commission constitute a disbursement of loan and grant funds in the same proportion as the totals of the allocation approved.

015 Inspection During Construction. The Commission and Director shall have the privilege of inspecting the construction of any project at any time in order to ensure that plans and specifications are being followed, and that the works are being constructed in accordance with sound engineering and technical principles and practices, but such inspection shall never subject the State of Nebraska to any action for damages. The Director shall bring to the attention of the sponsor and the project engineer any variances from the approved plans and specifications. The

Sponsor and the project engineer or project director shall initiate necessary corrective action.

016 Changes in Scope of Approved Projects. The Sponsor shall promptly report all increases in the cost of a project, or any separable component of the project, and any proposed additions, deletions, or modifications of any separable component, or any change in the purpose or purposes of the project by submitting to the Director an amendment to the formal application and feasibility report. Commission approval of any change in the scope, purpose, or plan for development of the project, and any increase in the tentative allocation for the project, or any separable component, shall be required. Any proposed change in the scope, purpose, or plan of development for the project, any request for an increase in the allocation for the project, or any cost increase, regardless of whether an increase in the tentative allocation for the project is requested, may at the discretion of the Commission, be referred to the Director for his or her review and recommendation regarding whether the project still meets the criteria for funding eligibility contained in the Act or the Commission's rules and regulations.

ANNOTATION

Title 256 *NAC* Section 2-1586, R.R.S., 1997; 2-1587, 2-1589, 2-1590, 2-1592, 2-1593, and 2-1595, R.S. Supp., 2000; and 2-1588 and 2-1594, as amended by LB 129, 97th Nebraska Legislature, 1st Session (2001)

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

TITLE 257 – REGULATIONS GOVERNING THE ADMINISTRATION OF THE SMALL WATERSHEDS FLOOD CONTROL FUND

NEBRASKA ADMINISTRATIVE CODE

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

TITLE 257

RULES AND REGULATIONS CONCERNING SMALL WATERSHEDS FLOOD CONTROL FUND

Adopted 7-19-01

NEBRASKA DEPARTMENT OF NATURAL RESOURCES TITLE 257 – RULES AND REGULATIONS CONCERNING SMALL WATERSHEDS FLOOD CONTROL FUND

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NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE:
Title 257 DNR – ADMINISTRATION OF SMALL WATERSHEDS CONTROL FUND

Chapter 1 – GENERAL PROVISIONS

001 Purpose of Rules. These rules and regulations are adopted for the purpose of administering the Small Watersheds Flood Control Fund created by section 2-1503.01 R.S. Supp., 2000.

002 General Availability of Funds. Financial assistance from the Fund shall be available only to local organizations which have programs qualifying for such assistance under these rules and regulations. The Commission, in its sole discretion, may allocate to any qualifying organization, from the Small Watersheds Flood Control Fund, such sum or sums as in the judgment of the Commission may be necessary for such local organization to acquire real property or easements needed to permit the local organization to effectuate the purposes of the Small Watersheds Flood Control Fund.

003 Definitions. All terms defined in section 2-1501 R.S. Supp., 2000 shall have the same definition when used in these rules and regulations. In addition:

003.01 "Fund" means the Small Watersheds Flood Control Fund created by section 2-1503.01 R.S. Supp., 2000.

004 Responsibilities.

004.01 It is the responsibility of the Commission to make allocations from the Fund and to specify the date and all other terms for the sale of any lands or rights-of-way acquired with funds from the Fund and to require the execution of all documents necessary to complete such sales.

004.02 It is the responsibility of the Director, through the Department, to administer the fund and to administer these rules and regulations.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE:
Title 257 DNR – ADMINISTRATION OF SMALL WATERSHEDS FLOOD CONTROL FUND

Chapter 2 – FUND ADMINISTRATION

001 Eligibility for Funds. To be eligible for assistance from the Small Watersheds Flood Control Fund, the local organization must first enter into an agreement with the Department specifying a hydrologic unit and the total number of land rights to be acquired by the local organization in such unit. Such agreement, which shall be on a form supplied by the Department, shall also provide that the local organization will abide by the law and rules and

regulations governing administration of the Small Watersheds Flood Control Fund. In addition, the following conditions must have been met:

001.01 The local organization has agreed on a program of work;

001.02 Such program of work has been found by the Department to be feasible, practicable, and will promote the health, safety, and general welfare of the people of the state;

001.03 The Department has either participated in the planning or reviewed the plans and has approved the program of work;

001.04 The local organization has obtained a minimum of seventy-five percent of the needed number of lands, easements and rights-of-way in the project or a subwatershed prior to the use of state funds for this purpose;

001.05 The local organization has made a formal request or application to the Department for state funds for the purpose of purchasing lands, easements, and rights-of-way;

001.06 The local organization and the Department have entered into an agreement on the administration and expenditure of these state funds;

001.07 The purchase price of the land, easement, or right-of-way has been established either by a court or by at least one registered, licensed, certified residential, or certified general real estate appraiser approved by the Department; and

001.08 The local organization has given assurance to the Department that it has obtained any water rights or other permits required under state or federal law and complied with all other applicable state laws.

002 Acceptance of Appraisals. An appraisal prepared in accordance with Section 2-1502 R.S. Supp., 2000 must accompany each formal request or application for funds. Such appraisal shall be supplied at no cost to the state. In the event the Commission or the Department is of the opinion that any appraisal is subject to question, the Department may hire an appraiser at state expense, to aid the Commission in making its decision whether or not to approve such appraisal.

003 Damage to Crops. When applicable, the local organization shall also cause an appraisal to be made of all crops which are growing on the land to be purchased. Such crop appraisal shall also be subject to Commission approval and any rule, hereinabove set forth, applicable to appraisals in general. The local organization shall give the landowner the option of (1) retaining his or her interest in the crops, in which event he or she shall be given a reasonable period of time in which to harvest the same; or (2) selling such interest along with the land.

004 Purchase Price and Total Cost of Acquisition. For all purposes of the administration of the Small Watersheds Flood Control Fund, the terms "purchase price" and "total cost of acquisition" shall, in the absence of a condemnation proceeding, mean the amount actually paid by the local organization or the amount established by an appraisal conducted in accordance with Section 2-1502, which ever is the lesser amount. In the event of a condemnation proceeding, such terms shall mean the amount of damages awarded by a court of competent jurisdiction. Payments by a local organization in excess of any purchase price so established shall be the sole responsibility of the local organization and shall have no effect upon the distribution

of any proceeds subsequently realized from the sale of the land or right-of-way pursuant to Section 2-1502.

005 Title Opinion or Title Insurance and Other Relevant Documents. Before any funds are paid out to the local organization, such organization must furnish to the Department a copy of a title opinion or title insurance policy on the property or interest to be acquired, whether through purchase or condemnation. If a title opinion is provided, such opinion shall have been drafted following a title search by an attorney who is hired by the local organization and who is admitted to practice law before the courts of Nebraska. If a title insurance policy is provided, it must be from an insurance company authorized to provide such insurance in Nebraska. The local organization shall also furnish the Department with a copy of any purchase agreement or other written document demonstrating the terms and conditions of the proposed purchase.

006 Eminent Domain Awards. If a local organization is unable to acquire an interest in real property for which an appraisal has been approved except through the power of eminent domain, approval by the Commission of any court award exceeding in amount such appraised value shall be required prior to the disbursement of any funds in excess of such appraised value. The Commission reserves the right to require that the local sponsor appeal such award if such award is deemed excessive or to allocate a percentage of the court award as provided in Section 2-007.

007 Amount Paid.

007.01 The Commission reserves the right to approve or reject payment for any purchases of any lands, easements, or rights-of-way within the hydrologic

unit described in the agreement and executed in accordance with section 2-001. In addition, if based on reports from the local organization or other information available to it, the Commission has reasonable grounds for concern that a project, or any portion of it, may not be completed, it may withhold or limit assistance to the organization for the acquisition of any lands, easements or rights-of-way needed for that project. Provided, however, any Commission action to refuse to assist an organization in paying the costs of acquisition of any interest in land shall not affect the organization's right to reimbursement for costs for which it has become legally obligated prior to such Commission action. In addition, such action shall not affect the organization's right to reimbursement for the cost of land, or interests in land, acquired through condemnation actions commenced prior to the Commission action. Reasonable grounds for concern shall include, but not be limited to, opposition to completion of the project including current or anticipated lawsuits or the unavailability or loss of local, other state, or federal funds.

007.02 The amount which will be approved by the Commission for payment out of the Small Watersheds Flood Control Fund shall not exceed the purchase price as defined in Section 2-004. The Commission may, however, determine that an amount less than the purchase price should be paid from the Small Watersheds Flood Control Fund for any one of the following reasons:

007.02A The dollar amount of all unapproved requests for funding assistance exceeds the availability of uncommitted funds. Prior to approving any additional requests for assistance under such circumstances, the Commission will, following consultation with all affected local organizations,

determine whether the available funds could be most effectively utilized.

007.02A1 By deferring assistance until funds do become available to one or more local organizations which would not encounter serious problems because of such deferral;

007.02A2 By allocating them to all applicants on the basis of a percentage of purchase price; or

007.02A3 By utilizing a combination of percentage allocation and deferral.

007.02B A court of competent jurisdiction has made an award in condemnation in excess of the value established by the appraisal approved by the Commission. Provided that, the dollar amount paid by the Commission in such cases shall not be less than the amount specified in the approved appraisal or the amount determined in accordance with section 007.02A, whatever amount is less.

007.03 If for any of the reasons previously provided, the Commission determines that an amount less than the purchase price should be allocated from the Small Watersheds Flood Control Fund for the acquisition of any interest in real property, the local organization shall remit to the Department a pro rata share of the proceeds of any subsequent sale of such property. The pro rata share shall be equal to the percentage of the total cost of acquisition of such property made from any state allocation from the Small Watersheds Flood Control Fund.

008 Documentation of Purchase. Within thirty days after the local organization receives payment from the state, the local organization shall forward to the Department a copy of the deed, easement, court decree (in the case of a condemnation proceeding) or any other document or material

deemed by the Department to be necessary in the particular case. Such deed, easement, court decree, etc. shall be verified by the clerk of the court or the register of deeds, whichever the case may be.

009 Conservation Plan. Within one hundred twenty days after the title or titles, as applicable, have been acquired, the local organization shall prepare a detailed Conservation Plan, a copy of which shall be sent to the Department to be made a part of the files.

010 Annual Inspection. At least once each year, a Department staff member and a representative of the appropriate local organization shall inspect each parcel of land for which fee title has been acquired and shall compare it to the respective Conservation Plan. A report of the staff member's findings along with any suggestions or recommendations to the local organization shall be filed with the Department and the local organization.

011 Annual Financial Statement. Each local organization holding fee title to lands purchased with Small Watersheds Flood Control Funds shall submit a complete financial statement to the Department by August 1 of each year. Such required statement shall set forth the income received from such lands and also the expenses incurred in the maintenance, improvement, management, etc. of such lands. This financial statement is required in addition to any other statement or accounting required to be submitted by the local organization by law or otherwise.

012 Annual Lease. When appropriate, a Department staff member shall work with a local organization in preparing the annual lease for such property as was acquired, in whole or in part, with Small Watersheds Flood Control Funds. Unless otherwise approved by the Director, leases

shall commence on the first day of March and terminate on the last day of February of the year next ensuing. No lease shall be deemed effective unless and until it has been approved in writing by the Director.

013 Use of Lease Revenues. In addition to the uses for rental and lease revenues as set forth in Section 2-1502 R.S. Supp., 2000, such revenues may be used for reasonable and necessary personnel costs and expenses incurred by the local organization in the management of such lands. As the Department is responsible for overseeing the management of such lands, the local organization shall consult with and keep the Department informed of all matters relevant to such management.

014 Disposition of Property. It shall be the duty of the local organization, within ten years from the purchase date of lands and rights-of-way, to

> *014.01* grant or retain, for public purposes, as provided for in Section 2-1502 R.S. Supp., 2000, and as provided by these regulations, or
>
> *014.02* sell at public auction

all lands and rights-of-way purchased wholly or partially from the Fund.

015 Sale Schedule. The Department shall maintain a schedule of the proposed dates of sale for lands purchased in whole or in part with funds from the Small Watersheds Flood Control Fund. On or about July 1 of each calendar year, the Commission shall review this schedule, consult with local sponsors holding title to such lands, make any additions or revisions that are deemed necessary, and adopt a sale schedule for the next ensuing fiscal year.

016 Notifying Public Bodies of Proposed Sales. For the purpose of Section 2-1502, R.S. Supp., 2000, the Department shall on or about September 1 of each year notify the Governor of the State and the appropriate public districts, cities, counties, political subdivisions and agencies of the State or of the Federal government of the land(s) scheduled to be sold in at least the next ensuing fiscal year. Such notification shall indicate the proposed date(s) of sale and shall summarize the process by which public entities may acquire such lands for public purposes.

017 Notice of Intent to Acquire or Retain. Any public district, city, county, political subdivision, or agency of the State or of the Federal government which is interested in acquiring or retaining for public purposes land(s) purchased in whole or in part with Small Watersheds Flood Control Funds shall notify the Department of such interest by January 1 of the year prior to the fiscal year in which the property is scheduled to be sold.

018 Appraisal and Notification to Public Bodies of Appraised Fair Market Value. Whenever a public entity indicates in accordance with Section 2-017 that it is interested in acquiring or retaining lands purchased in whole or in part with Small Watersheds Flood Control Funds, the Department shall, by June 1 of the fiscal year prior to the year in which the property is scheduled to be sold, have an appraisal prepared for such lands in accordance with section 2-1502 R.S. Supp., 2000, as amended, and notify such public entity of the appraised fair market value. Such notification shall indicate the proposed date of sale, the appraised fair market value, and the requirements for purchase or retention by public bodies in accordance with Section 2-020.

019 Acquisition by Public Bodies. Any public district, city, county, political subdivision or agency of the State or of the Federal government which desires to acquire or retain for public purposes land(s) purchased in whole or in part with Small Watersheds Flood Control Funds shall notify the Department of such desire by September 10 of the fiscal year in which the property is scheduled to be sold. A report explaining the public purpose to be made of such property shall be simultaneously submitted to the Department. Such report shall include a description of the public uses to be made of such property, a description of and timetable for improvements, if any, and a discussion of management techniques to be utilized to serve the proposed public purpose. The report shall also document the public entity's legal and financial abilities to acquire or retain such property and to implement the proposed public purpose. If retention by the local organization of such land for public use is approved pursuant to the procedures hereinafter provided, the Department, within 90 days of approval, shall be reimbursed in the amount of the pro rata share of the appraised fair market value that is equal to the percentage of the total cost of acquisition paid by the Fund. If acquisition of such lands for public use by a public body other than the local organization holding title to the property is approved, the Department shall be reimbursed in the amount of the prorated share of the appraised fair market value that is equal to the percentage of the total cost of acquisition paid from the Fund and the local organization transferring the title to the acquiring public body shall be reimbursed in the amount of any remaining portion of the appraised fair market value, both reimbursements to occur within 90 days of such approval or approvals. All such proceeds to the Department shall be remitted to the State Treasurer for credit to the Fund.

020 Criteria for Acquisition by Public Bodies.

020.01 Whenever a public entity indicates in accordance with Section 2-019 that it desires to acquire or retain lands purchased in whole or in part with Small Watersheds Flood Control Funds, the Commission shall, no later than November 1 of the fiscal year in which the property is scheduled to be sold, determine whether the property should be so acquired or retained or whether it should be offered for sale at public auction in accordance with Sections 024 through 029. In making such determination, the Commission shall consider the following factors:

020.01A The nature of the public purpose for which acquisition or retention is requested and the demand for such purpose in the area to be served thereby.

020.01B The nature of probable alternative uses for such property and their relative importance in the community and the state.

020.01C The adequacy of the property to satisfy the proposed public purpose in comparison to its adequacy to satisfy probable alternative uses.

020.01D The relative economic impacts which could be anticipated in the community because of the proposed public purpose and probable alternative uses.

020.01E The legal and financial abilities of the public body to acquire or retain the property and to implement the proposed public purpose.

020.01F The compatibility of the proposed public purpose with operation and maintenance of the property for the purpose for which it was originally

acquired and its consistency with accepted conservation principles.

020.02 Prior to determining whether the property should be acquired or retained by the public body or offered for sale at public auction, the Commission shall consult with the local organization holding title thereto and other interested organizations and individuals. If the amount invested in such property from the Small Watersheds Flood Control Fund constituted the full purchase price, the decision of the Commission regarding the purchase or retention of such property by the public body shall be binding on the local organization. If, however, a portion of the original purchase price was contributed by the local organization, such local organization shall have independent authority to disapprove the purchase of such property by another public body, and any such disapproval shall result in the property being offered for sale at public auction as scheduled.

021 Desire to Acquire by Two or More Public Entities. In the event that two or more public entities indicate a desire to purchase or retain the same land or right-of-way, the Commission shall evaluate each separately in accordance with Section 2-020. If following such evaluation, more than one of the proposed purchases by public bodies are deemed preferable to offering the property for sale at public auction, the Commission shall evaluate such proposals on their relative merits to determine which proposal would best serve the public interest.

022 Acquisition or Retention of Less Than Full Parcel.

022.01 The acquisition or retention by public bodies of a parcel of land smaller in size than the parcel scheduled to be offered for sale will be approved only if such

purchase or retention would satisfy the criteria of Section 2-020 and if

022.01A It would have no anticipated adverse effect on the marketability of the remainder of the full parcel, and

022.01B No additional public purpose would be served by acquisition or retention by such public body of the remainder of the full parcel.

022.02 The local organization shall be responsible for any surveys which are deemed necessary because of such acquisition or retention or for providing proper identification of such parcel prior to the sale at auction of the remaining portion of the full parcel. The public body acquiring such parcel shall reimburse the local organization for all actual and necessary costs incurred as a result of such survey and identification.

023 Agreement to Retain in Public Use. As a condition to acquiring or retaining for public purposes any lands acquired in whole or in part with funds from the Small Watersheds Flood Control Fund, the acquiring or retaining public body shall enter into an agreement with the Department. Such agreement, which shall remain in effect and be controlling as to the public body's utilization and disposition of the property for a period not to exceed 25 years, shall specify the following terms and conditions:

023.01 The property shall, unless otherwise approved by the Commission, be retained by the public body for the public purposes specified in the report submitted pursuant to Section 2-019.

023.02 No use shall be made of the property which is incompatible with the purposes for which it was originally acquired in whole or in part with funds from the Small Watersheds Flood Control Fund.

023.03 Such public body shall not utilize the property or any part thereof for income production unless such income results from activities necessary to the maintenance of the property or to serving the public purposes for which the property was acquired or retained.

023.04 Any other terms or conditions which the Commission deems appropriate. A copy of such agreement shall be filed by the Department in the register of deeds office of the county in which such land or right-of-way is located.

024 Public Auction. When any lands involving these funds are to be sold, whether those lands are to be sold with or without improvements, such sale, unless governed by Sections 2-019 through 2-023 shall be by public auction. Prior to such sale the Department shall:

024.01 Cause an appraisal to be made of such land,

024.02 Retain the services of a public auctioneer,

024.03 Cause legal notice thereof to be published pursuant to Section 2-027.

025 Public Auctioneers. In retaining the services of a public auctioneer for the sale at auction of any lands purchased in whole or in part with these funds, the Department shall, not less than 60 days prior to the date established for the sale of any such lands, advertise for bids for the services of such public auctioneer. Selection of the auctioneer from those submitting bids shall be the responsibility of the Commission.

026 Sale of Improvements. When any improvements on lands involving these funds are to be sold separately from the land, such sale may be conducted by sealed bids or by public auction. Prior to such sale of improvements, the

Department shall cause legal notice thereof to be published pursuant to Section 2-027.

027 Notice of Sales. Notice of all sales governed by these rules shall be published in a legal newspaper of general circulation in the county in which such land(s) and/or improvement(s) is (are) located and also in a legal newspaper with statewide circulation. Such notices shall be published once each week for three consecutive weeks, the last publication of which shall not be published less than seven days prior to the date set for the auction or for the opening of sealed bids. Such notices shall list and describe the land(s) and/or improvement(s) to be sold and the easements and/or rights-of-way, if any, which will be retained by the local organization, and shall state the date, time and place for the opening of the sealed bids. If appropriate, such notice shall state the address where sealed bids are to be mailed or delivered, and the deadline for receipt of the same. The terms of payment and any other information that in the particular case would be required to impart adequate notice to all interested parties shall also be provided.

028 Sealed Bids. In order to be eligible for consideration, sealed bids for improvements shall state which improvement(s) the bid is for and shall be accompanied by a certified check or bank draft made out in the full amount of the bid. If any sealed bid is not accepted, the deposit shall be returned to the bidder within thirty days after the day on which the bids are opened. All sealed bids shall be mailed or delivered to the Department. Such bids must be received at least three days prior to the date set for their opening. All sealed bids shall remain sealed until the time set for their opening, at which time the two highest bids shall be read.

029 Conduct of Auction. The public auction for each tract of land to be sold shall remain open for receipt of bids for a minimum of one hour, but may be closed at the end of such time period if there are no reasonable grounds to believe that a higher bid would be received were the auction held open for a longer period of time.

030 Earnest Money Deposit. The highest bid for a tract of land received at public auction shall, in order to be eligible for consideration by the Commission, be accompanied by a check, bank draft, or cash in an amount of not less than twenty percent of the bid.

031 Purchase Agreement. The highest bidder for the purchase of any of the lands governed by these rules shall, after being designated the highest bidder, enter into a purchase agreement with the local organization stating that the balance due shall be paid within thirty days of notification by the local organization of the acceptance of the bid by the Commission. The purchase agreement shall describe all applicable terms for the sale, including all terms specified by the Commission pursuant to Section 2-1503.03 R.S. Supp., 2000. Failure to comply with this rule or with the conditions of the purchase agreement shall result in the forfeiture of said bidder's deposit.

032 Approval or Rejection of Bids. The Commission reserves the right to refuse any and/or all bids. At the next regularly scheduled Commission meeting following the closing of all bidding, the Commission shall review the highest bid, considering, if applicable, such factors as the original purchase price, any increases or decreases in land valuation, the present appraised fair market value, and any other criteria which may reflect the adequacy of the

bid. If a portion of the original purchase price was contributed by the local organization, such local organization shall be consulted regarding the adequacy of the bid prior to approving or rejecting the same. In the event the Commission approves a bid, it shall direct the local organization to proceed with the sale. Upon receiving full payment, the local organization shall convey title to the purchaser, reserving as applicable, such interests in the land as are necessary for the local organization to carry out its ongoing responsibilities relative to management of the land or to any improvements constructed thereon or necessary to effect any terms for the sale specified by the Commission pursuant to Section 2-1503.03 R.S. Supp., 2000. In the event that the Commission determines that a bid is inadequate, the bidder's deposit shall be returned within ten days after such determination, the land shall be leased for an additional year, and the land shall be rescheduled for sale according to the rules hereinabove set forth.

033 Sale Expenses. Any expenses incurred by the Department or the local organization in conducting this sale shall be subtracted from the sale price prior to a pro rata distribution of such sale proceeds between the local sponsor and the Department in accordance with Section 2-007.03.

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

TITLE 259 – REGULATIONS GOVERNING THE ADMINISTRATION OF THE WATER WELL DECOMMISSIONING FUND

NEBRASKA ADMINISTRATIVE CODE

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

TITLE 259

RULES AND REGULATIONS GOVERNING THE ADMINISTRATION OF THE WATER WELL DECOMMISSIONING FUND

Adopted 7-19-2001

NEBRASKA ADMINISTRATIVE CODE

TITLE 259 – NEBRASKA DEPARTMENT OF NATURAL RESOURCES RULES GOVERNING THE ADMINISTRATION OF THE WATER WELL DECOMMISSIONING FUND

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Allocation of Funds	Sec. 46-1404, R.S. Supp., 2000	Chapter 3
General Provisions	Sections 46-1401 through 46-1405, R.R.S. 1998 and R.S. Supp., 2000	Chapter 1
Qualified Cost-Sharing Programs	Sec. 46-1405, R.R.S., 1998	Chapter 2
Reimbursement to Districts	Sec. 46-1404, R.S. Supp., 2000	Chapter 4

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Qualified Cost-Sharing Programs	Sec. 46-1405, R.R.S., 1998	Chapter 2
Allocation of Funds	Sec. 46-1404, R.S. Supp., 2000	Chapter 3
Reimbursement to Districts	Sec. 46-1404, R.S. Supp., 2000	Chapter 4

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: JULY 24, 1996
Title 259 DNR – ADMINISTRATION OF WATER WELL DECOMMISSIONING FUND

Chapter 1 – GENERAL PROVISIONS

001 Purpose of Rules. These rules and regulations are adopted for the purpose of administering the Water Well Decommissioning Fund created by section 46-1403, as it will appear in R.S. Supp., 2000.

002 General availability of funds. Financial assistance from the Fund shall be available only to natural resources districts which have cost-sharing programs for decommissioning water wells consistent with sections 46-1401 through 46-1405, R.R.S., 1998 and R.S. Supp., 2000, and these rules and regulations and which have entered into a contractual arrangement with the Department setting forth the terms for providing such financial assistance.

003 Definitions. As used in these rules and regulations, unless the context otherwise requires:

003.01 "Decommissioning" shall mean the act of filling, sealing, and plugging a water well in accordance with the rules and regulations of the Department of Health and Human Services, Regulations and Licensure;

003.02 "Department" shall mean the Department of Natural Resources created by Section 81-101, R.S. Supp., 2000;

003.03 "Director" shall mean the individual holding the position of Director of Natural Resources created by section 81-102, R.S. Supp., 2000;

003.04 "District" or "Natural Resources District" shall mean a district created and operating in accordance with Chapter 2, Article 32, Reissue Revised Statutes of Nebraska;

003.05 "Fund" shall mean the Water Well Decommissioning Fund created by section 46-1403, R.S. Supp., 2000;

003.06 "Licensed pump installation contractor" shall mean an individual as defined in section 46-1209 and holding a current license issued in accordance with Chapter 46, Article 12, Nebraska Revised Statutes;

003.07 "Licensed water well contractor" shall mean an individual as defined in section 46-1213, R.R.S. 1998 and holding a current license issued pursuant to Chapter 46, Article 12, Nebraska Revised Statutes; and

003.08. "Water well" shall mean any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for ground water, monitoring ground water, utilizing the

geothermal properties of the ground, obtaining hydrogeologic information, or extracting water from or injecting water into the underground water reservoir. Water well shall not include any excavation made for obtaining or prospecting for oil or natural gas or for inserting media to repressure oil or natural gas bearing formations regulated by the Nebraska Oil and Gas Conservation Commission.

004 Access to Files and Compliance with Agreement and Rules and Regulations. The files of each participating natural resources district shall be available for inspection by personnel of the Department and by representatives of the State Auditor's Office during normal business hours of the district. In the event that the Director becomes aware of a violation of the contract between the district and the Department or of these rules and regulations, the Director may terminate the contract and/or demand reimbursement of any state funds related to such violation.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: JULY 24, 1996
Title 259 DNR – ADMINISTRATION OF WATER WELL DECOMMISSIONING FUND

Chapter 2 – QUALIFIED COST-SHARING PROGRAMS.

001 Program Eligibility. For a district to be eligible for reimbursement from the Fund, it must establish a water well decommissioning cost-share program which is consistent with the following requirements:

001.01. The district program must apply only to water wells which are decommissioned in accordance with all applicable state laws, standards, rules, and

regulations and by a licensed water well contractor or licensed pump installation contractor.

001.02. The program must not exclude any category of water wells from cost-share eligibility.

001.03. The program must be available for at least thirty water wells per year. To establish and maintain eligibility, a district does not have to provide cost-share assistance to at least thirty water wells each year. For a given fiscal year a program that is otherwise consistent with these rules will be consistent with this requirement if the district has budgeted at least $10,000 for that program that fiscal year. If a natural resources district produces sufficient evidence to document that it can cost-share the decommissioning of at least thirty water wells for less than $10,000, the Director may determine that such district's program is eligible if the amount budgeted for decommissioning is equal to or greater than that lesser amount.

001.04. The district program must provide at least 60% of the cost of decommissioning water wells, except that a district may establish a maximum cost-share amount of no less than $300 for all water wells other than hand-dug water wells and no less than $700 for hand-dug water wells. For purposes of these rules, the cost of decommissioning a water well does not include the cost of removing any exposed or buried pipes, tanks or pumps or any tower, wellhouse or other apparatus or obstruction around or in the water well that might interfere with the process of decommissioning.

002 Program Certification by District. Each natural resources district desiring reimbursement from the Fund shall complete a program certification form provided by the Director. The form shall be completed and returned by

July 15 of each year the district wishes to receive reimbursement from the Fund.

003 Approval of Programs. The Director shall be responsible for determining whether a natural resources district cost-sharing program for decommissioning water wells complies with the requirements of this chapter. Before making any such determination, the Director may request additional information from any district.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: AUGUST 17, 2000
Title 259 DNR – ADMINISTRATION OF WATER WELL DECOMMISSIONING FUND

Chapter 3 – ALLOCATION OF FUNDS

001 Allocation of Funds. The Director shall allocate funds only to districts which have entered into a contractual arrangement with the Department and have a water well decommissioning cost-sharing program consistent with the requirements of Chapter 2 of these rules and regulations. Each participating district's percentage of the funds available for a fiscal year will be determined by the Director on or before August 1 of that year and shall be based upon that participating district's proportion of the wells decommissioned the previous fiscal year statewide with natural resource district cost-share assistance. Only decommissionings cost-shared the previous fiscal year with district programs consistent with the requirements of Chapter 2 of these rules and regulations may be counted in determining (1) the total number of wells decommissioned statewide with cost-share assistance and (2) each district's proportion of that total. Funds shall be allocated

to participating districts from those available in the Water Well Decommissioning Fund on at least a quarterly basis. Except as provided in Rule 003 of this Chapter each district's share of each allocation shall be based upon the percentages determined in accordance with this rule.

002 Certifying Wells Decommissioned. On or before July 15 of each year, each district which desires to be reimbursed from the Fund shall certify the number of wells decommissioned with cost-sharing assistance the previous fiscal year in accordance with this chapter.

003 Revising Allocations. The percentages determined pursuant to rule 001 of this chapter may be adjusted by the Director after March 1 if the Director determines that one or more districts cannot reasonably be expected to use their full percentage of the funds available for that fiscal year. To assist the Director in making such determinations, each participating district shall provide the Director with a report by March 1. The report shall indicate the number of wells which that district has approved for cost-share assistance and which are expected to be decommissioned and cost-shared by the district before July 1 and any other information the district desires to indicate the demand for funds in that district. If such report provides adequate evidence that the district is likely to provide sufficient decommissioning cost-share assistance to utilize all of the district's percentage of the available funds by July 1, that district's percentage will be maintained. If any district does not provide the report, or if any district's report indicates that it cannot be expected to utilize all of its percentage by July 1, the Director may reduce that district's percentage and distribute any funds thus made available to districts which have documented the need for additional funds in that fiscal year. Such distribution shall

be based on the Director's determination of the proportionate number of well decommissionings that could still be cost-shared within those districts in the remainder of the fiscal year.

004 Expiration of Allocation. Except to the extent that the Department encumbers funds at the end of the fiscal year to reimburse districts for cost-share assistance paid by them in that fiscal year, allocations shall not be carried over from one fiscal year to the next. Any unexpended but reappropriated funds will be included in the amount allocated for the next fiscal year. Funds encumbered by the Department at the end of the fiscal year shall also be released if a request for reimbursement for such funds has not been received by the Director by July 15.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: JULY 24, 1996
TITLE 259 DNR – ADMINISTRATION OF WATER WELL DECOMMISSIONING FUND

Chapter 4 – REIMBURSEMENT TO DISTRICTS

001 Limit on Reimbursements. Actual reimbursements to the district for each water well decommissioned with district cost-share assistance in accordance with these rules and regulations shall not exceed the lesser of: (1) 75% of the cost of such decommissioning; (2) $300 for all water wells other than hand-dug wells; (3) $700 for hand-dug water wells; or (4) the actual amount of the cost-share assistance paid by the district.

002 Requesting Reimbursement. A participating district may request reimbursement no more often than monthly, except as necessary to avoid a loss of encumbered funds in accordance with Rule 004 of Chapter 3 of these rules and regulations. To be eligible for such reimbursement, the district must certify the following information for each water well for which cost-share reimbursement is being sought: (1) the total cost of decommissioning the well; (2) the cost-share amount paid by the district; and (3) that district cost-sharing for the well was in compliance with sections 46-1401 through 46-1405, R.R.S., 1998 and R.S. Supp., 2000, as amended and with these rules and regulations.

Title 259
Chapter 3

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

TITLE 262 – REGULATIONS GOVERNING THE ADMINISTRATION OF THE SOIL AND WATER CONSERVATION FUND

NEBRASKA ADMINISTRATIVE CODE

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

TITLE 262

RULES AND REGULATIONS GOVERNING THE ADMINISTRATION OF THE SOIL AND WATER CONSERVATION FUND

Adopted 7/19/01

NEBRASKA ADMINISTRATIVE CODE

TITLE 262 – NEBRASKA DEPARTMENT OF NATURAL RESOURCES RULES GOVERNING THE ADMINISTRATION OF THE SOIL AND WATER CONSERVATION PROGRAM

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Application and Eligibility for Funds	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 3
Apportionment of Funds	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 2
Cost-Share Rates and Reimbursement Procedures	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 5
Department Administration of the Fund	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 7
Design, Layout, and Construction of Proposed Projects and Practices and Operation and Maintenance	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 4
District Administration of the Fund	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 6

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Application and Eligibility for Funds	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 3
Design, Layout, and Construction of Proposed Projects and Practices and Operation and Maintenance	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 4
Cost-Share Rates and Reimbursement Procedures	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 5
District Administration of the Fund	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 6

Department Administration of the Fund	Section 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S., 1997 and R.S. Supp., 2000	Chapter 7

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: September 8, 1998
Title 262 DNR – ADMINISTRATION OF NEBRASKA SOIL AND WATER CONSERVATION PROGRAM

Chapter 1 – GENERAL PROVISIONS

001 Purpose of Rules. These rules and regulations are adopted for the purpose of carrying out the purposes and requirements of the Nebraska Soil and Water Conservation Act.

002 General Availability of Funds. Financial assistance from the Nebraska Soil and Water Conservation Fund shall be available only to landowners of land located in natural resources districts which have agreed to assist the Department in the administration of the Fund and have executed a Memorandum of Understanding with the Department setting forth the terms of such assistance.

003 Definitions. As used in these rules and regulations, unless the context otherwise requires:

003.01 "Act" shall mean the Nebraska Soil and Water Conservation Act as established and governed by sections 2-1575 to 2-1579 and 2-1583 to 2-1585, R.R.S. 1997, and R.S. Supp., 2000 and any and all amendments, additions, or deletions which have been or may be made thereto;

003.02 "Apportion" shall mean to set aside funds for use in accordance with the act and these rules and

regulations, but shall not mean any physical distribution or other transfer of such funds;

003.03 "Average unit cost" shall mean the unit of measure cost determined to be the average cost charged in that county for the work performed and materials required in installing such unit;

003.04 "Board" or "Board of Directors" shall mean the board of directors of the district in which is located the land upon which the projects or practices are proposed or installed;

003.05 "Commission" shall mean the Nebraska Natural Resources Commission created pursuant to Section 2-1504, R.S. Supp., 2000, and amendments thereto;

003.06 "Department" shall mean the Department of Natural Resources created pursuant to Section 81-101, R.S. Supp., 2000;

003.07 "District" shall mean a natural resources district created and governed by sections 2-3201 to 2-32,101, R.R.S., 1997, and amendments and additions thereto;

003.08 "Eligible project or practice" shall mean a project or practice designated as eligible for state cost-share funds by the Commission in accordance with Section 3-001;

003.09 "Fiscal year" shall mean July 1 of any calendar year through June 30 of the next calendar year;

003.10 "Fund" shall mean the Nebraska Soil and Water Conservation Fund created by Section 2-1577, R.R.S., 1997 and R.S. Supp., 2000 and amendments thereto;

003.11 "Landowner" or "owner" shall mean the record owner or owners of real property or upon adequate documentation of the sale of real property by land contract, the purchaser or purchasers of said real property;

003.12 "NRCS" shall mean the United States Department of Agriculture, Natural Resources Conservation Service;

003.13 "Participating district" shall mean a natural resources district which is a party to a then current agreement entered into in accordance with Section 1-002;

003.14 "Project or Practice" shall mean the soil or water conservation or water quality protection work of improvement or activity for which cost-sharing assistance is requested or approved;

003.15 "State cost-share funds" shall mean funds available from the Nebraska Soil and Water Conservation Fund.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: November 5, 1999
Title 262 DNR – ADMINISTRATION OF NEBRASKA SOIL AND WATER CONSERVATION PROGRAM

Chapter 2 – APPORTIONMENT OF FUNDS

001 Apportionment of Funds.

001.01 Each fiscal year each participating district shall receive a new apportionment of funds for each of the following time periods:

001.01A July 1 to February 28; and

001.01B March 1 to June 30.

001.02 The amount which shall be apportioned to each participating district for each such period shall be the combined total of:

001.02A A portion of the funds obligated but unexpended in such district as of the last day of the preceding apportionment period, such portion to be determined as follows:

001.02A1 For each apportionment period beginning on March 1, each district shall be apportioned the full amount of funds obligated but unexpended in such district as of the last day of the preceding apportionment period;

001.02A2 For each apportionment period beginning on July 1, each district shall be apportioned the full amount of funds obligated but unexpended by such district as of the last day of the preceding apportionment period if the total amount of all funds obligated but unexpended by all participating districts for that preceding apportionment period is $1,000,000 or less. If such total is more than $1,000,000, the amount to be apportioned to all districts shall be reduced to $1,000,000 and each district shall be apportioned a percentage of its obligated but unexpended funds, such percentage to be determined by dividing $1,000,000 by such total;

and

001.02B A portion of the sum of all unobligated funds as of the last day of the preceding apportionment period, any previously obligated but unexpended funds made available as a result of the reduction pursuant to Rule 001.02A2, and any

funds newly appropriated to the Soil and Water Conservation Fund. In determining the amount of this part of each district's apportionment, the Commission may divide no more than one million four hundred thousand dollars equally among all participating districts and shall, subject to Subsections 001.03 or 001.04, distribute the remainder, if any, among participating districts on the basis of one or more of the following criteria:

001.02B1 The conservation or water quality protection needs in that district as expressed in monetary terms;

001.02B2 The extent of the district's previous use of the Fund; and

001.02B3 The district's own commitment to conservation or water quality protection as expressed by the expenditure of its general revenues for basic soil and water conservation or water quality protection practices in the preceding fiscal year.

001.02B4 The need, as determined by the Commission, to provide assistance for one or more specific projects or practices or for one or more specific geographic areas.

The Commission may also in any apportionment period establish a minimum or maximum amount to be apportioned to any one district if it determines that such a minimum or maximum is necessary to maintain the viability of the Soil and Water Conservation Fund program in all participating districts.

001.03 The Department shall reserve at least two per cent of the funds credited to the Fund for grants to landowners ordered by a natural resources district pursuant to the Erosion and Sediment Control Act to

install permanent soil and water conservation practices. Such funds shall be made available at a rate sufficient to provide the landowner with total cost-sharing assistance of at least ninety percent of the actual cost of the required permanent practices and shall be granted on a first-come, first-served basis until exhausted. Such funds shall not be obligated by the district, but shall be obligated, if available, by the Director of Natural Resources to a landowner when a copy of the district's administrative order and a copy of an application for cost-share assistance are received by the Director. The application for cost-share assistance must be approved by the district before submission to the Director. Such funds shall remain obligated until used or until the district advises the Director of Natural Resources that all or part of the funds are no longer needed. If more than two per cent of the funds credited to the Fund are at any time reserved by the [sic] for such purposes, the [sic] may at any later time release all or part of such excess for inclusion in any future apportionment to the districts if it concludes that such funds are no longer needed for the purposes of this subsection.

001.04 The Commission may withhold from any apportionment pursuant to Rule 001.02B not more than 20% of the total unobligated funds available. Such funds may be later apportioned to districts which have obligated all previously apportioned funds and can demonstrate a need for additional funds or may be apportioned to districts for use in critical erosion or water quality areas. No one district shall receive more than 15% of any such withheld funds unless there are adequate funds available for all districts requesting and demonstrating a need for such additional funds on or before May 1.

001.05 No district shall obligate any funds after the last day of any appointment period until notified by

the Department of a new apportionment. The report submitted pursuant to Section 6-008 shall be the basis for determining the amount of funds obligated and unobligated by each participating district as of February 28 and June 30 of each fiscal year. Any district failing to submit a report due on or before the fifth working day of any July or March may be denied any apportionment of funds for the next apportionment period.

002 Supplemental Apportionments. The Commission may, by utilizing funds repaid to the Fund or otherwise made available for expenditure pursuant to the Act, establish supplemental apportionments of funds to participating districts. To the extent consistent with legislative direction, any such supplemental apportionment may be combined with any apportionment made pursuant to Section 2-001, Subsection 001.02 or 001.04.

003 Termination of the Memorandum of Understanding. In the event that the Memorandum of Understanding required by Section 1-002 is terminated by a district or by the Department, the district shall release all funds unobligated as of the effective date of such termination and shall further release as they become available obligated funds for which no claim for payment is made in a timely manner. Any funds so released shall be used by the Commission to supplement in accordance with Section 2-002 the funds apportioned to participating districts.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: November 5, 1999
Title 262 NNRC – ADMINISTRATION OF NEBRASKA SOIL AND WATER CONSERVATION PROGRAM

Chapter 3 – APPLICATION AND ELIGIBILITY FOR FUNDS

001 Establishing Project Eligibility. Landowners shall be eligible for cost-share funds only for the types of projects and practices designated as eligible for such purposes by the Commission. The Commission shall at least annually review the list of projects and practices for which such funds should be utilized and shall affirm or modify such list as it deems appropriate. Funds apportioned to districts for that fiscal year may be obligated only for projects and practices thus designated. Each participating district may further limit the types of projects and practices eligible for funding assistance in that district; the Department shall be promptly notified of any such action.

002 Application for Assistance. To be eligible for cost-share assistance from the fund, a landowner must make application therefor on forms provided by the Department. Copies of such forms shall be available at such locations as the district shall specify.

003 Certification of Practices. Before the district board of directors approves the application for assistance, a technician qualified to assess the practicability and need for the projects or practices for which assistance is requested shall certify that such projects or practices are feasible and that the estimated quantities are practical and reasonable. If such technician is other than an individual employed for such purposes by the district or by the NRCS, the qualifications of such technician shall be established to the

satisfaction of the board prior to approval of the application.

004 Availability of Federal Funds. Except for funds to be obligated by the Commission in accordance with Section 2-001, Subsection 001.03, applications for cost-sharing assistance from the Fund cannot be approved by the district board of directors unless it determines that federal funds were not available for the proposed project or practice at the time the application was submitted by the landowner. Federal funds shall be deemed to be unavailable in the county where the land is located if all such funds then available for obligation in such county through federal cost-sharing programs have been obligated or if the particular project or practice proposed is not eligible for federal cost-sharing funds in that county but is eligible for state cost-sharing assistance. Federal cost-sharing funds shall also be deemed to be unavailable to the extent that the maximum allowable dollar amount available from a federal cost-sharing program to individual landowners in a given year has limited or will limit the landowner's federal cost-share payment to an amount less than that to which such landowner would have been entitled in the absence of such a dollar limitation. In the event of the utilization of both state and federal cost-share funds on the same project or practice, the state cost-share funds provided to the landowner shall not exceed the amount which ineligible contributors are authorized to provide by federal regulations and operating procedures.

005 Federal Multi-year Agreements. Notwithstanding any provision of Section 3-004, federal cost-sharing funds shall be deemed to be unavailable for a project or practice which is included in a federal multi-year cost-sharing agreement or contract when and only when federal maximum dollar

amounts for that type of project or practice or that contract have been or are to be paid from federal cost-sharing funds.

006 Compliance with Applicable Laws. In the installation or application of any eligible project or practice the landowner shall be solely responsible for assuring compliance with any applicable federal, state, or local laws, ordinances, and rules and regulations. The landowner is also solely responsible for obtaining all permits, licenses, or other instruments of permission required prior to the installation of the proposed project or practice.

007 Group Project or Practices. In the event that the most appropriate solution to the needs addressed by the act requires the eligible projects or practices to be located on or across the property lines of different landowners, and when such landowners desire to jointly install, operate, and maintain such needed projects or practices, state cost-share funds may be used to share the cost when the following additional provisions have been satisfied.

007.01 A group planning agreement prepared by or on behalf of landowners must be signed and submitted by the landowners involved and approved by the board;

007.02 If the proposed projects or practices are approved by the board, the landowners shall arrange for carrying out the projects or practices by securing and recording any easements which are necessary and by agreeing to a division of the costs and cost-share payments;

007.03 One member of the group shall be designated as the group representative to file the application for cost-share assistance, such application to be accompanied by a written statement describing the

arrangements agreed to under subsection 007.02 above;

007.04 The group representative shall make arrangements to have the project or practice installed, make payments and obtain receipts from vendors;

007.05 The group representative shall submit the claim for payment, supported as otherwise required by these rules and regulations;

007.06 Payment will be made to the group representative;

007.07 The division of cost-share assistance provided will be made by the group representative in the manner indicated in the agreement previously reached among the members of the group;

007.08 A cost-share assistance agreement must be signed by each member of the group on whose land a portion of the project or practice has been installed;

007.09 When two or more landowners intend to participate financially in the installation of a project or practice located wholly on the property of one landowner, the procedures outlined in this section may be used but are not required.

008 Termination Date. All applications shall specify a termination date which shall be no more than nine months from the date the landowner's application is approved by the board. Claims for payment received after such termination date shall not be honored unless an extension of not to exceed an additional three months time period is approved by the board by amendment to the original application.

009 Application Amendments.

009.01 An amendment to an application for cost-sharing assistance shall be appropriate for any of the following reasons:

009.01A To increase or decrease consistent with the responsible technician's certification pursuant to Section 3-003 the quantities of eligible projects or practices needed and/or the amount of cost-share funds estimated on the original application.

009.01B To extend the termination date indicated on the original application consistent with Section 3-008;

009.01C To cancel the agreement by mutual consent.

009.02 A copy of any amendment will be furnished to each party receiving a copy of the original agreement and the board shall approve each such amendment before it shall become effective.

010 Need for Additional Reviews The Commission may identify projects or practices for which reviews by an entity in addition to the district are required before the board of directors may approve applications for cost-share assistance, or any amendments thereto, pursuant to Section 6-002 or may approve claims for payment pursuant to Section 6-005. In the event the Commission takes such action, the Department, within five working days thereafter, shall notify the affected districts and as soon thereafter as possible, shall direct the affected districts concerning the process for future acceptance and approval

of applications, amendments, and claims for payment which include such projects or practices.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: September 8, 1998
Title 262 DNR – ADMINISTRATION OF NEBRASKA SOIL AND WATER CONSERVATION PROGRAM

Chapter 4 – DESIGN, LAYOUT, AND CONSTRUCTION OF PROPOSED PROJECTS AND PRACTICES AND OPERATION AND MAINTENANCE

001 Technical Specifications. Unless the Commission provides otherwise for specific projects and practices, specifications for projects and practices set forth in the NRCS Field Office Technical Guide are to be used as the basis for determining need and practicability of the proposed project or practice, for preparing plans and specifications, for designing and laying out such projects and practices, and for certifying the proper installation or application of such projects and practices. Specifications for additional projects and practices not set forth in the NRCS Field Office Technical Guide and modifications to those included in such Technical Guide may be considered and authorized by the Commission at the request of the District. Project and practice description and specification information will be on file in the district office and at all such places as application forms are made available.

002 Inspections and Certifications. A responsible technician shall prior to installation or application of the proposed project or practice determine that the plans therefore are adequate and shall inspect any construction work in progress to determine that specifications are met.

Following such installation or application, it will be the responsibility of such technician to certify to the district that the project or practice was or was not properly installed or applied. If the district does not receive a technician's certification that the project or practice was properly installed or applied, it shall not approve any claim to the Department for payment regarding such project or practice. In the event that any technician responsible for complying with any portion of this section is different from the technician who originally certified the feasibility of the project or practice in accordance with Section 3-003, and if such technician is other than an individual employed for such purposes by the District or by NRCS, the qualifications of such technician shall be established to the satisfaction of the board prior to proceeding any further with processing of any claim for payment.

003 Operation and Maintenance by Landowner. Except as provided in Section 3-004, the landowner shall be responsible for the operation and maintenance of all projects and practices constructed with assistance from the Fund and the landowner will be expected to maintain the same in good operating condition to assure their continued effectiveness for the purpose or purposes for which they were installed.

004 Operation and Maintenance by District. If on any particular proposed project or practice, the district determines that landowner assumption of all operation and maintenance responsibilities would constitute an undue burden upon such landowner or would not assure operation or maintenance adequate to protect such project or practice from failure, the district may agree to be or require that it be responsible for all or a part of such operation and maintenance and may prior to and as a

condition for approval of an application for cost-share funds, require the landowner to provide the district with the right of access necessary to perform such operation or maintenance.

005 Cost-Share Assistance Agreement. As a condition for receiving any cost-share funds for eligible projects or practices, the landowner shall, prior to submission of a claim for reimbursement, enter into an agreement on forms supplied by the Department providing that if a conservation practice is terminated or a project or practice is removed, altered, or modified so as to lessen its effectiveness, without prior approval of the district, for a period of ten years after the date of receiving payment, the landowner shall refund to the Fund the full amount of the state cost-share payment previously received for the project or practices or portion thereof which has been thus terminated, removed, altered or modified.

006 Requests for Termination, Removal, Alterations, Modifications. A landowner may request the district's approval of the termination, removal, alteration, or modification of the project or practice at any time during the 10-year period following receipt of payment. In determining whether to approve or disapprove such action, the district shall consider:

006.01 The value of the project or practice in conserving soil and water resources or protecting water quality;

006.02 The extent to which such project or practice hinders the highest and best use of the land upon which such project or practice is located;

006.03 Whether alternative forms of soil and water conservation or water quality protection measures

have been or are to be constructed or implemented; and

006.04 The time remaining in the designed life of the project or practice.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: September 8, 1998
Title 262 DNR – ADMINISTRATION OF NEBRASKA SOIL AND WATER CONSERVATION PROGRAM

Chapter 5 – COST-SHARE RATES AND REIMBURSEMENT PROCEDURES

001 Cost-Share Rates. The district may establish any cost-share rates for eligible projects and practices up to 75% of average unit cost. However, except as provided in Section 2-001, Subsection 001.03, no payment shall exceed 75% of the actual cost of the project or practice installed or applied. Participating districts shall notify the Department by February 1 of each year of the cost-share rates to be utilized for reimbursement purposes during the next ensuing year. In the event that average unit costs are not established in accordance with Section 5-002, or that average unit costs which are available are determined by the Commission to be unreliable because of the site-specific nature of the costs of a certain type of project or practice, the cost-share rate in effect will be applied to actual cost and average cost will not be utilized and need not be calculated on individual applications.

002 Average Costs. Unless a district establishes and informs the Department of lower average unit costs, the average unit costs for a county shall be identical to any established and utilized by NRCS for the same type of

projects and practices in that county. If average unit costs are not established by NRCS for an eligible practice in a county, the Commission itself may establish average unit costs for such project or practice in such county. Except for applications filed with the Commission in accordance with Section 2-001, Subsection 001.03, all applications for cost-sharing assistance shall be based upon the then current average unit costs. Once an application has been completed by a landowner, the same average unit costs in effect at the time the application was completed shall be utilized for determining the cost-share payment to which each landowner is entitled unless the district and the landowner agree to use updated average unit costs.

003 Eligible Costs. Except for costs incurred in employing the services of a technician as required by these rules and regulations or as otherwise may be limited by the Department, all necessary costs incurred by the landowner in installing or applying an approved project or practice shall be eligible for cost-sharing. Such costs include machine hire or the costs of the use of his own equipment, needed materials delivered to an [sic] used at the site, and labor required to construct the project.

004 Documenting Costs. All authorized items of costs for which the landowner desires cost-sharing assistance shall be itemized on a statement submitted to the district by the landowner in such form as is required by the Department. Costs incurred by the landowner in furnishing his own labor, material, or equipment for use on a project or practice should be listed in a certified statement itemizing such items and showing unit cost for each item and the total amount for which payment is claimed.

005 Claim for Payment. The landowner shall after the project or practice has been completed and certified by the responsible technician complete a claim for payment on forms provided by the Department and available at the location where the application form was obtained. A copy of the document(s) required by Section 5-004, shall be attached to such claim for payment prior to submission to the district. A claim for payment will not be accepted unless the landowner has signed the portion of the claim form required by Section 4-005.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: September 30, 1994
Title 262 DNR – ADMINISTRATION OF NEBRASKA SOIL AND WATER CONSERVATION PROGRAM

Chapter 6 – DISTRICT ADMINISTRATION OF THE FUND

001 Application. Sections 6-001 through 6-009 shall apply only to districts which have entered into a Memorandum of Understanding with the Department agreeing to assist the Department in the Administration of the Fund.

002 Board Action on Application. The board of directors shall review each cost-share assistance application and any and all amendments thereto and shall approve or disapprove each such application or amendment. Such action shall be recorded in the official minutes of the meeting and the landowners shall be notified of such action within ten days thereafter. For any project or practice subject to additional review in accordance with Section 3-010, the board shall not approve an application

for cost-share assistance or an amendment thereto except in compliance with direction given by the Department.

003 Approving Applications. Except for applications pursuant to Section 2-001, Subsection 001.03, applications for cost-share assistance may be approved by the board only when there is a sufficient unobligated fund balance to provide the estimated cost-share amount based upon the average cost information indicated on the application. The board may if it desires give preference to the construction of projects or practices which will in its judgment provide the greatest public benefit in that district. Examples of projects and practices which would provide the most public benefit include those which would reduce runoff and sediment damage to lakes, streams, reservoirs, roads, highways, or other public improvements and those which would reduce demands on or contamination of the groundwater reservoir and/or provide enhanced recharge to an aquifer with a declining water table.

004 Record Keeping. The district shall maintain a record of funds obligated as applications for cost-share assistance are approved based upon estimated costs. A cost-share ledger will be kept current showing the balance of unobligated funds and such other information as the Department determines is necessary to provide for proper documentation of all expenditures from the Fund.

005 District Review of Claim for Payment. Upon completion of an approved project or practice, the district shall review the claim for payment prepared by the landowner in accordance with Section 5-005, and shall if it finds that the project or practice was properly installed, that all other conditions have been satisfied, and that the claim has been properly completed and is accompanied by all

required supporting documentation, approve the claim and certify the same to the Department with all supporting documentation attached. For any project or practice subject to additional review in accordance with Section 3-010, the board shall not approve a claim for payment except in compliance with direction given by the Department. If the district determines that the claim is improperly prepared or that other deficiencies exist, it shall so notify the landowner and shall provide the landowner with a reasonable opportunity to correct such deficiencies and to resubmit the claim for payment.

006 District Assistance to Landowner. The district shall provide such assistance as it deems appropriate to the landowner in the completion of necessary forms and in all matters relating to completion of eligible projects and practices.

007 Filing System. To provide for efficient processing of requests for cost-sharing assistance and for maintenance of necessary documentation of matters relating to the administration of the Fund, the district shall develop and maintain with the assistance of the Department a filing system which includes copies of all forms completed by the landowner and all other information deemed relevant to the installation and application of the eligible projects and practices and to the cost-sharing assistance provided. Such files shall be available for inspection by personnel of the Department and by representatives of the State Auditor's Office during normal business hours of the district.

008 Reports. The district shall no later than the 5th working day of March, July and November of each year submit a report to the Department indicating the status of cost-share funds as shown on each cost-share ledger

required by Section 6-004 at the close of the last day of the preceding month.

009 Delegation of Responsibilities by Board. The board of directors may delegate to the district manager or to a member or sub-committee of the board all or any of the authorities and responsibilities assigned to it by these rules and regulations except the establishment of preferred projects and practices in accordance with Section 6-003 and the limitation of the types of projects and practices eligible for assistance in accordance with Section 3-001. The Department shall be notified in writing of any such delegation.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: September 30, 1994
Title 262 DNR – ADMINISTRATION OF NEBRASKA SOIL AND WATER CONSERVATION PROGRAM

Chapter 7 – DEPARTMENT ADMINISTRATION OF THE FUND

001 Forms. The Department shall prepare and make available to participating districts sufficient copies of all forms necessary for district administration and shall further prepare and keep updated a handbook for use by districts in assisting in the administration of the fund.

002 Department Review of Claims for Payment. Upon receipt from a district of a district approved claim for payment, a Department representative shall review the claim and the supporting documentation which is attached. If the claim is determined to be complete and properly documented, the Department shall prepare a

voucher for transmittal to the Department of Administrative Services for preparation of a warrant payable to the landowner or to a group representative designated in accordance with Section 3-007.

003 Payment to Landowner. Upon receipt of the warrant from the Department of Administrative Services, the Department shall transmit it by mail to the landowner or group representative.

004 Incomplete or Inaccurate Claims for Payment. If in reviewing the claim for payment, the Department determines that the information contained thereon is incomplete or inaccurate, that an error exists in the final computation or that proper documentation has not been supplied, it shall so notify the district of such deficiency. The district shall then request the landowner to complete a new claim for payment. No payment will be authorized until the Department has determined that the claim for payment and the necessary supporting documentation are complete and accurate in all respects.

005 Violations of Cost-Sharing Assistance Agreement. In the event that the Department is notified of an alleged violation of the cost-sharing assistance agreement, a representative of the Department and/or a representative of the district shall investigate the alleged violation and shall report the results of such investigation to the Department. If following the investigation it appears as though a violation has in fact occurred, the Department shall so notify the landowner and shall make demand for repayment of the appropriate amount to the Fund within 30 days thereafter. The landowner may within the time specified for such repayment contest the occurrence of a violation and may request that the Department conduct a formal hearing to reconsider such demand for payment.

Such hearing shall be conducted in accordance with Title 261 of the Department Rules and Regulations. If following the hearing, the Department determines that the violation did in fact occur, it shall so notify the landowner in accordance with the provisions of Title 261 and shall renew the demand for repayment. If repayment is not provided or all deficiencies corrected at the owner's expense within the time specified, appropriate legal action shall be taken by the Department to recover such amount.

006 Report to Districts. The Department shall prepare on a quarterly basis a report to each participating district indicating the payments which have been made from the fund during the preceding quarter and any other information determined by the Department to be of value to the districts regarding the administration of the fund.

NEBRASKA DEPARTMENT OF
NATURAL RESOURCES

TITLE 263 – REGULATIONS GOVERNING
THE ADMINISTRATION OF THE NATURAL
RESOURCES WATER QUALITY FUND

NEBRASKA ADMINISTRATIVE CODE

NEBRASKA DEPARTMENT OF
NATURAL RESOURCES

TITLE 263

RULES AND REGULATIONS GOVERNING
THE ADMINISTRATION OF THE NATURAL
RESOURCES WATER QUALITY FUND

ADOPTED 7-19-2001

NEBRASKA ADMINISTRATIVE CODE

TITLE 263 – NEBRASKA DEPARTMENT OF NATURAL RESOURCES RULES GOVERNING THE ADMINISTRATION OF THE NATURAL RESOURCES WATER QUALITY FUND

ALPHABETICAL TABLE OF CONTENTS

SUBJECT	STATUTORY AUTHORITY	CODE SECTION
Distribution of Funds	Sec. 2-15,123, as amended by Section 2, LB 329, 97th Nebraska Legislature, 1st Session (2001)	Chapter 2
General Provisions	Sec. 2-15,122, as amended by Section 1, LB 329, 97th Nebraska Legislature, 1st Session (2001)	Chapter 1
Qualified Expenditures	Sec. 2-15,123, as amended by Section 2, LB 329, 97th Nebraska Legislature, 1st Session (2001)	Chapter 3

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Qualifying Expenditures	Sec. 2-15,123, as amended by Section 2, LB 329, 97th Nebraska Legislature, 1st Session (2001)	Chapter 3

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: MARCH 13, 1996

Title 263 DNR – ADMINISTRATION OF NATURAL RESOURCES WATER QUALITY FUND

Chapter 1 – GENERAL PROVISIONS

001 Purpose of Rules. These rules are adopted for the purpose of administering the Natural Resources Water Quality Fund governed by Sections 2-15,122 and 2-15,123, as amended by Sections 1 and 2, LB 329, 97th Nebraska Legislature, 1st Session (2001).

002 General Availability of Funds. Financial assistance from the Fund shall be available only to natural resources districts which have programs qualifying for such assistance under these rules and which have entered into a contractual arrangement with the Department setting forth the terms for providing such financial assistance.

003 Definitions. As used in these rules and regulations, unless the context otherwise requires:

003.01 "Commission" shall mean the Natural Resources Commission created pursuant to Section 2-1504, R.S. Supp., 2000, and amendments thereto;

003.02 "Department" shall mean the Nebraska Department of Natural Resources created by Section 81-101, R.S. Supp., 2000, and amendments thereto;

003.03 "Director" shall mean the individual holding the position of Director of Natural Resources created by Section 81-102, R.S. Supp., 2000;

003.04 "District" or "Natural Resources District" shall mean a district created and operating in accordance with Chapter 2, Article 32, Reissue Revised Statutes of Nebraska; and

003.05 "Fund" shall mean the Natural Resources Water Quality Fund created by Section 2-15,122, as amended by Section 1, LB 329, 97th Nebraska Legislature, 1st Session (2001).

004 Access to Files and Compliance with Agreement and Rules and Regulations. Each participating natural resources district shall maintain records adequate to document that the district had expenditures qualified pursuant to Chapter 3 of these rules in amounts equal to or exceeding the amount provided from the Fund plus the required cost-share. Such files shall be available for inspection by

personnel of the Department and by representatives of the State Auditor's office during normal business hours of the district. In the event that the Director becomes aware of a violation of the contract between the district and the Department or of these rules and regulations, the Director may terminate the contract and/or demand reimbursement of any state funds related to such violation.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: MARCH 13, 1996
Title 263 DNR – ADMINISTRATION OF NATURAL RESOURCES WATER QUALITY FUND

Chapter 2 – DISTRIBUTION OF FUNDS

001 Schedule for Distributing Funds. Funds shall be distributed, pursuant to Section 002 of this chapter to participating districts on or before the 15th day of August, each year and at such other times during the year as the Director determines that sufficient additional funds are available to make a distribution and the participating districts indicate their ability to use additional funds.

002 Determining Distributions. The money available for each distribution from the Fund shall be divided among participating districts as follows:

002.01 Except as provided by Section 004 of this Chapter, sixty percent of the funds available shall be distributed to districts on the basis of proportionate fertilizer sales within the districts during the preceding three calendar years for which sales records by county are available from Nebraska Agricultural Statistics or a comparable source. For a county which is contained within more than one district, each

district's proportion of sales shall be based upon its proportionate land area within the county. If sales records are not made available for any county, the Director shall establish that county's portion of the statewide sales total. That decision shall be based upon the best available information which may include, but not be limited to, county land area and sales in adjacent counties. In the event the Commission chooses to reserve up to ten percent of funds available for special distribution pursuant to 004 of this Chapter, the amount of funds available for distribution pursuant to this subsection shall be decreased by the amount reserved.

002.02 Twenty percent of the funds available shall be divided equally among all participating districts.

002.03 Twenty percent of the funds shall be distributed among districts which have (1) a designated ground water management area for water quality purposes or (2) a clean lakes watershed area designated pursuant to Section 314 of the Clean Water Act, or comparable federally funded program. Each district's distribution pursuant to this subsection shall be based upon the proportionate land area in that district which is in such a designated area compared to the total land area within the state in such designated areas. If specific lands are in more than one such designated area, they shall be counted only once for purposes of this subsection.

003 At least thirty days prior to a distribution pursuant to Section 002 of this chapter, the Department shall notify each district of the estimated amount of funds to be distributed to that district. If any district does not believe it could fully utilize any such distribution in the amount estimated, it shall provide the Department with timely notification of the amount of funds which it could utilize

for qualified programs. The difference between that amount and the amount that would otherwise be distributed to that district pursuant to Section 002 of this Chapter will be divided among the other participating districts according to subsections 002.01 through 002.03.

004 The Commission may reserve up to ten percent of the funds that otherwise would be distributed pursuant to Section 002 of this Chapter as part of the first distribution in any fiscal year. Any such reserved funds will be distributed by the Director to participating districts for specific programs and/or projects by September 15 of the fiscal year in which they are to be expended. Application for such funds shall be made on a form provided by the Department. If the available funds are not sufficient to fund all those for which application has been made, priority will be given to programs and projects offering innovative ways to address water quality problems. No district shall receive more than twenty-five percent of the funds distributed pursuant to this section in any one fiscal year unless funds are available for all other qualified applications submitted.

NEBRASKA ADMINISTRATIVE CODE

LAST ISSUE DATE: MARCH 13, 1996
Title 263 DNR – ADMINISTRATION OF NATURAL RESOURCES WATER QUALITY FUND

Chapter 3 – QUALIFYING EXPENDITURES

001 Qualifying Programs and Projects. Subject to the requirement of Section 002 of this Chapter, a participating district may expend funds distributed pursuant to Chapter 2 of these rules for costs incurred by that district for any of

the following programs and projects: (1) the purchase, installation, maintenance, and use of ground water sampling and testing equipment; (2) the purchase, installation, maintenance, and use of surface water sampling and testing equipment; (3) education and information programs related to water quality issues; (4) administration of ground water quality management areas; (5) purchase, installation, and maintenance of special monitoring wells and related equipment; (6) flow meters and other equipment required in ground water management areas; (7) source water protection programs and activities; (8) preparation and updating of ground water management plans; (9) implementation of water quality "best management" practices in both rural and urban areas, including programs which cost-share expenses of landowners and operators in installing or using such practices; (10) soil sampling and testing programs for soils in and below the crop root zone; (11) water quality research; (12) well decommissionings; (13) Chemigation permitting and inspection programs; (14) investigations, because of water quality concerns, of potential replacement sources of water for public water suppliers; (15) animal waste management activities including research, treatment lagoon cost-sharing, feedlot waste effluent management, and inactive feedlot management; and (16) other water quality related programs and projects approved in advance by the Director. The Director shall have sole discretion to determine whether a district's program qualifies for funding pursuant to this subsection.

002 Cost-Share Requirement. For each two dollars expended by the district from the funds distributed pursuant to Chapter 2 of these rules, the district shall spend at least three dollars in funds derived from other non-state sources for the programs and projects identified in Section 001 of this chapter.

003 Certification of Expenditures and Reimbursement of Funds. Funds distributed pursuant to Chapter 2 of these rules and regulations must be expended by the district in the fiscal year distributed. On or before August 31, the district shall account for expenditure of the funds made available from the Fund in the previous fiscal year. The Department shall provide a form for such purposes. In the event that all funds distributed in the previous fiscal year were not expended by June 30 of that fiscal year, or that any funds were expended for programs or projects that the Director determines were not qualified for funding, or that the district did not match the funds distributed in the proportion required by Section 002 of this chapter, the district shall reimburse the Department for the amount thus unexpended, improperly expended, or unmatched. All such reimbursed funds shall be redeposited in the Fund for redistribution in accordance with Chapter 2 of these rules and regulations. No new distributions shall be made to a district which has not made a reimbursement required by this section.

APPENDIX E3

Upper Republican Natural Resource District

RULES AND REGULATIONS FOR GROUND WATER CONTROL OF THE UPPER REPUBLICAN NATURAL RESOURCES DISTRICT MANAGEMENT AREA ORDER NO. 25

EFFECTIVE SEPTEMBER 1, 2002 IN CONCERT WITH REVISED PARTS IV AND VI OF THE URNRD TECHNICAL MANUAL, TM – 25

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STATE OF NEBRASKA
UPPER REPUBLICAN NATURAL RESOURCES DISTRICT AMENDMENTS TO RULES AND REGULATIONS GROUNDWATER CONTROL – ORDER NO. 25

Pursuant to Section 46-656.25, R.R.S. 1998, Rules and Regulations for Groundwater Control, Order No.25, and Technical Manual TM 25 adopted July 2, 2002, are amended as follows:

RULE I: DEFINITIONS

All words, terms and phrases used herein shall be given their common, every day meaning and usage. In addition:

A. **Allocated Acres** shall mean the specific number of acres that have been Certified by the Board as eligible to be granted an allocation of groundwater.

B. **Allocation** shall mean the amount of groundwater granted by the Board to a groundwater user, pursuant to these rules and regulations.

C. **Board of Directors** or **Board** shall mean the elected Board of Directors of the Upper Republican Natural Resources District.

D. **Certified Irrigated Acre** shall mean any acre of ground upon which groundwater is being applied for irrigation purposes, regardless of the source of the groundwater, that is properly equipped to apply groundwater for irrigation purposes, and that has an allocation and is certified as such by the Board. (**Also see Irrigated Acre**)

E. **Certified Irrigated Tract** shall mean an irrigated tract, not exceeding 640 contiguous acres, consisting of Certified Irrigated Acres. **(Also see Irrigated Tract)**

F. **Critical Township** shall mean any township within the Management Area designated as Critical under the criterion of Rule 4 herein, and in TM-25.

G. **District** shall mean the Upper Republican Natural Resources District, which encompasses Chase, Dundy, and Perkins Counties, in the State of Nebraska.

H. **Flowmeter** shall mean a device of a type or design approved by the Board, which, when installed, operated and maintained according to District specifications, measures and totalizes the amount of groundwater withdrawn.

I. **Groundwater Irrigation Runoff** shall mean groundwater used for irrigation purposes which escapes from land owned, leased, or otherwise under the control of a groundwater user. Groundwater that becomes commingled with surface water runoff shall be treated as irrigation runoff; except that groundwater

irrigation runoff, whether commingled with surface water or not, which reaches a stream becomes surface water and is not subject to these rules and regulations.

J. **Improper Groundwater Irrigation Runoff** shall mean the occurrence of groundwater irrigation runoff which causes or contributes to the: accumulation of water upon or beneath the surface of the lands of any person to their detriment, damage, or inconvenience; deterioration of water quality by depositing sediment and/or associated chemicals in surface water within the Management Area; and/or flow of groundwater to waste. Improper groundwater irrigation runoff is subject to the General Enforcement Provisions of Order No.25 and TM-25.

K. **Irrigated Acre** shall mean any acre with a demonstrated or proven history of having been or currently being irrigated.

L. **Irrigated Tract** shall mean any acres with a demonstrated or proven history of having been or currently being irrigated.

M. **Management Area** shall mean all of Perkins, Chase and Dundy Counties and shall include the rock unit known as the Ogallala Formation and all other deposits of more recent geological age. That part of Dundy County lying south of the centerline of the Republican River and its North Fork Tributary, including the rock unit known as the Ogallala Formation and all other deposits of more recent geological age, is subject only to Rules 1, 2, 3, 4, 5, 6, 7, 8, 9 (B, C, D, E, & F), 12, 13, 14 (A, C), 15, 16, 17, 18, 19 and 20; and supplemental counterparts in Part VI of the Technical Manual.

N. **Offset** shall mean any deduction from an allocation.

O. **Permit** shall mean a permit, granted by the Board, with conditions specified by the Board, for construction of a new well or a replacement well pursuant to these rules and regulations. All new and replacement wells, except Domestic and Range Livestock, shall require a permit after September 1, 2002 prior to construction of the well.

P. **Person** shall mean a natural person, a partnership, a limited liability company, an association, a corporation, a municipality, an agency or political subdivision of the State or of the United States. The male pronoun shall include the female.

Q. **Pooling** shall mean any contract approved by the Board in which groundwater allocations are combined.

R. **Technical Manual** shall mean a publication of the District that contains technical, administrative, procedural, regulatory and other materials, the contents of which are incorporated into these rules by reference herein. The Technical Manual is available to the public.

S. **Transfer** shall mean any arrangement approved by the Board in which the point of withdrawal, the point of use, or the type of use of an allocation is altered.

T. **State** shall refer to the State of Nebraska.

U. **Well** shall mean any water well as defined in Nebraska statutes, Sections 46-601.01, 46-635.01, 46-1204.01, 46-1204.02, and 46-1212, R.R.S. For the purposes of these rules and regulations, wells are further defined and classified as follows:

1. **Domestic Wells** are wells used by a person or by a family unit or household for normal household uses and for the irrigation of lands not exceeding two acres in area for the growing

of gardens, orchards, and lawns. Such wells are exempt from application of these rules.

2. **Range Livestock Wells** are wells, which are used for the watering of range livestock, and other uses of water directly related to the operation of a pasture or range. Such wells are exempt from application of these rules except for Rule 1-U-8.

3. **Irrigation Wells** are active wells that are fully equipped, and used for the pumping of groundwater to irrigated acres for the production of crops. Such wells must have a permit, Certified Acres, and an allocation; and be used in conjunction with a flowmeter located in the District

4. **Commercial Livestock Wells** are wells which are used for the watering of livestock and other uses directly related to the operation of a feedlot or other confined livestock operation or dairy. Such wells must have a District permit and water allocation; and be used in conjunction with a flowmeter located in the District.

5. **Back-up Wells** are wells designed for confined livestock and dairy operations and which operate only in emergencies when the main well fails. Back-up wells shall not be operated simultaneously with the commercial livestock wells, which they back up. Such wells must have a permit and any water pumped from such shall be accounted against the allocation for the well it backs up. Such well must be used in conjunction with a flowmeter located in the District.

6. **Industrial Wells** are wells used in manufacturing and commerce operations, and/or watering and maintenance of golf courses. Such wells must have a permit and an allocation; and be used in conjunction with a flowmeter located in the District.

7. **Municipal Wells** are wells owned and used by municipalities for public water supply. Such wells must have a permit and an allocation; and be used in conjunction with a flowmeter located in the District.

8. **Commingled Wells** are water wells that are commingled, combined, clustered, or joined with any other water well or wells or other water source, other than a water source used to water range livestock, after August 31, 1998. Such wells shall be considered one water well and the combined capacity shall be used as the rated capacity. Such wells must, prior to operation, have a permit and an allocation, and be used in conjunction with a flowmeter located in the District.

9. **Supplemental Well** is any well, the water from which is commingled with the water from any other well for irrigation purposes.

10. **Replacement Well** shall mean a well as defined by Section 46-602(3), R.R.S

11. **Abandoned Well** shall mean a well as defined by Section 46-1204.01, R.R.S.

12. **Inactive Status Well** shall mean a well as defined by Section 46-1207.02, R.R.S. The owner of any permitted well must notify the District when an active well is placed in inactive status.

13. **Monitoring Well** shall mean a well as defined by 178 NAC 12 at 002, Nebraska Department of Health and Human Services.

14. **Observation Well** shall mean a well as defined by 178 NAC 12 at 002, Nebraska Department of Health and Human Services.

15. **Illegal Well** shall mean a well as defined by Sections 46-656.07(5) and 46-1207.01, R.R.S.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule.

RULE 2: FLOWMETERS

After the effective date of Order 25, all wells requiring permits shall be equipped with flowmeters or other device or method approved by the Board. Owners or operators of such wells shall allow the District staff to determine from the flowmeters, by January 15 of each year, the amount of groundwater withdrawn from each well during the preceding calendar year.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule. See especially, "Flowmeters", pages 12 & 13, *Part VI, TM-25.*

RULE 3: IRRIGATED ACRES AND TRACTS

A. The total number of acres irrigated in the District, belonging to or under the control of every groundwater user, must be reported annually to the District

B. Wells drilled in Critical Townships after August 31, 1998, shall not be deemed to be irrigating more than

130 acres for groundwater allocation purposes, except for replacement wells, which shall be deemed to irrigate the same number of Certified Acres as the well being replaced. Wells without allocations that are returned to service after being idled, are subject to the 130-acre maximum limitation, or the previously irrigated acres if less than 130 acres.

C. The Board will specify the number of Certified Irrigated Acres on each Certified Irrigated Tract for each groundwater user. Failure of the groundwater user to confirm the number of acres irrigated under his ownership or control shall preclude the Board from granting an allocation to such user.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule. See especially "Irrigated Acres and Tracts", page 13 & 14, *Part VI; TM-25.*

RULE 4: CRITICAL TOWNSHIPS

Critical Townships are those townships that have a three-year average annual decline of the groundwater table exceeding one-fourth of one percent of the saturated thickness of the aquifer in that township as deteffi1ined [sic] by yearly groundwater measurements of observation and continuous recorder wells throughout the Management Area. Townships designated as Critical are listed in the District Technical Manual; and shall remain designated as Critical for a minimum of five years.

See District Technical Manual for a list of designated Critical Townships; and technical, administrative, procedural, regulatory, and other materials related to this Rule. See especially "Critical Townships", pages 14,15 & 16, *Part VI; TM-25.*

RULE 5: WELL SPACING

Spacing of all wells, for which District permits are required, and regardless of ownership and classification, must be approved by the Board prior to drilling the well. The following regulation applies to the spacing of all wells subject to these rules and regulations and receiving permits from the District:

A. In Non-Critical Townships:

1. New Wells – Any irrigation, commercial livestock, industrial, or municipal well drilled in a Non-Critical Township after August 31, 2000, must be at least 1,320 feet from any domestic, livestock, irrigation, commercial livestock, industrial or municipal well not belonging to the owner or controller of the land upon which the new well is established.

2. Replacement Wells – With the exception of A.2.(a), any irrigation, commercial livestock, industrial, or municipal well drilled in a Non-Critical Township as a replacement well after August 31, 2000, must be at least 1,320 feet from any domestic, livestock, irrigation, commercial livestock, industrial or municipal well not belonging to the owner or controller of the land upon which the replacement well is to be established.

   (a) If the well to be replaced is within 1,320 feet of a domestic, livestock, irrigation, commercial livestock, industrial or municipal well not belonging to the owner or controller of the land upon which the replacement well is to be established, the replacement well must be drilled within 150 feet of the well it replaces.

B. In Critical Townships:

1. New Wells – Any irrigation, commercial livestock, industrial, or municipal well drilled in a Critical Township after August 31, 2000, must be at least 1,320 feet from any domestic or livestock well, and 5,280 feet from any other well not belonging to the owner or controller of the land upon which the new well is established.

2. Replacement Wells – With the exception of B.2.(a), any irrigation, commercial livestock, industrial, or municipal well drilled in a Critical Township as a replacement well after August 31, 2000, must be at least 1,320 feet from any domestic or livestock well and 5,280 feet from any irrigation, commercial livestock, industrial or municipal well not belonging to the owner or controller of the land upon which the replacement well is established.

   (a) If the well to be replaced is within 1,320 feet of a domestic or livestock well, or within 5,280 feet of any irrigation, commercial livestock, industrial or municipal well not belonging to the owner or controller of the land upon which the replacement well is to be established, the replacement well must be drilled within 150 feet of the abandoned well it replaces.

C. In the event any Statute of the State of Nebraska prescribes any well spacing requirement that is more stringent or restrictive than the well spacing requirement of Rule 9, the State Statute shall prevail.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related

to this Rule. See especially "Well Spacing", pages 16 & 17, *Part VI, TM-25.*

RULE 6: INACTIVE STATUS WELLS

The Board may approve the placing of Active Wells into Inactive Status at the request of the well owner or their legally appointed representative.

A. All wells being placed into an Inactive Status shall conform to all relevant State statutes including those specifications defined in Section 46-1207.02 as follows:

   1. The water well does not allow impairment of the water quality in the well or of the Groundwater encountered by the well;

   2. The top of the water well or water well casing has a water-tight, welded or threaded cover or some other water-tight means to prevent its removal without the use of equipment or tools to prevent unauthorized access, to prevent a safety hazard to humans and animals, and to prevent illegal disposal of waste or contaminants into the water well; and

   3. The water well is marked so as to be easily visible and located and is labeled or otherwise marked so as to be easily identified as a water well and the area surrounding the water well is kept clear of brush, debris, and waste material.

B. The well shall be marked in a permanent form with the Registration Number as a clearly legible engraving, raised metal embossing of the characters, or on a metal plate permanently welded, riveted or bolted to the casing.

C. Both the State and the District must be notified within 60 calendar days of when the change to Inactive Status is achieved and any subsequent changes of the status of the well.

D. While in a Board approved Inactive Status the Well will

1) maintain the approved Certified Irrigated Acres and Certified Irrigated Tract associated with it;

2) maintain the Allocation amount current at the time the Board approved the Well being made Inactive:

3) NOT accumulate additional Allocation amounts for the years it is in Inactive Status; and

4) Re-enter Active Status with the Allocation amount it went into Inactive Status with plus any remaining Allocation left for the Allocation period in which it is made Active again.

E. Failure to comply with and maintain the provisions of A, B, and C above will make the Well an Illegal Well.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule.

RULE 7: SUPPLEMENTAL WELLS

No permit shall be granted for any supplemental well as defined in Rule 1-U-9.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule.

RULE 8: PUMPING OF WATER ACROSS NRD BOUNDARIES

Groundwater pumped from another NRD to this District, or from this District to one or more other Districts, shall be subject to the Rules and Regulations of all involved Districts.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule.

RULE 9: ALLOCATIONS OF GROUNDWATER

A. Each Certified Irrigated Acre within a Certified Irrigated Tract is hereby granted a basic allocation of 72.5 acre inches for the period commencing January 1, 2003 and terminating December 31, 2007.

1. Groundwater users pumping less than the total basic allocation together with unused carryforward from prior allocation periods may carry the total forward to subsequent allocation periods.

2. If, at the termination of the allocation period, any groundwater user has exceeded his allocation and banked carryforward, his basic allocation for the next allocation period shall be reduced by the number of acre-inches by which he exceeded said allocation and carryforward.

3. Certified Acres in the Federal Conservation Reserve Program (CRP) shall not receive an allocation during the term enrolled. Certified Irrigated Acres being removed from the CRP shall be granted an allocation prorated to the years remaining in the allocation period. In addition, upon removal from the CRP, each Certified Acre shall receive the total of the carryforward brought

into the 5-year allocation period in effect at the time of enrollment plus the sum of the annualized allocation of 14.5 inches minus the inches used for each year of the allocation period prior to the year of enrollment.

4. On or before March 1, 2006 the Board of Directors shall commence deliberations concerning groundwater allocations for the succeeding allocation period to start January 1, 2008. Such deliberations shall be completed before August 31, 2006, and an allocation for the succeeding allocation period shall be established.

B. All Industrial Wells shall have an allocation prior to operation. The owner of each industrial well shall, on or before January 15 of each year, apply for an allocation for that calendar year on forms provided by the District.

C. Commercial Livestock Wells may be allocated an annual maximum of 22-acre feet per 1000 animal units, designated for an approved capacity.

D. Each municipality is hereby granted without further application, an annual allocation computed as designated in the District Technical Manual.

E. Allocations for any and all wells may be amended, reduced, increased, or made subject to limitations or conditions upon notice and hearing.

F. The District may institute formal adjudicatory proceedings, or take any other legal action authorized or permitted by law, to prohibit further withdrawal of groundwater whenever any groundwater user has exhausted his allocation during or before termination of any allocation period; or has in any other way violated the amount, limitations, or conditions of his allocation. In the event of such action, no groundwater may

be withdrawn until the groundwater user has adhered to District Rules and Regulations.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule. See especially "Allocations of Groundwater", pages 18 & 19, *Part VI, TM-25.*

RULE 10: POOLING

The Board may approve pooling of groundwater allocations. The Board will consider the utility of replacing Pooling, as it now exists, with a Transfer system. The Transfer system, if approved, would be in place by January 1, 2004.

A. No new pooling contract shall be approved which contains any Certified Irrigated Tract, which has no unused allocation or carryforward of groundwater.

B. Pooling contracts involving lands within a Critical Township and a non-Critical Township can only be accomplished if such lands are contiguous.

C. Pooling contracts will be permitted only between individuals, partnerships and corporations and other owners of Certified Irrigated Tracts when accompanied by proof of ownership or an appropriate power of attorney.

D. A pooling contract shall not result in more groundwater being withdrawn from the aquifer within a Critical Township than the groundwater user has been allocated for Certified Irrigated Acres in Certified Irrigated Tracts within that Critical Township.

E. Upon the termination of any pooling contract, proof of ownership must be provided.

F. Pooling contracts, or changes to pooling contracts, must be submitted in writing with all required signatures to the District on or before March 31 of the year and approved by the Board before they are implemented.

G. Certified Irrigated acres in the Federal Conservation Reserve Program, or any successor thereto, may not be involved in any pooling contract.

H. A Certified Irrigated Tract removed from the Federal Conservation Reserve Program may not be part of a pooling contract within five (5) years of the date said Tract is removed.

I. If a change of ownership of any Certified Irrigated Tract in a pooling contract occurs, the unused groundwater allocation for said Tract shall remain with said Irrigated Tract. The Board may, upon the written request of the owner or owners of the Tract(s), equalize the unused groundwater allocation among the irrigated acres involved.

J. Purchased Certified Irrigated Tracts or purchased dry land tracts to be developed for irrigation, will not be eligible to be pooled with any other Certified Irrigated Tracts or Tracts for a period of three (3) irrigation seasons from the date the purchase is made. Tracts that are purchased may be pooled if originally in the same pooling contract.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule

RULE 11: TRANSFERS

Board approval must be received for transfer of all or a portion of any groundwater allocation to another tract or use.

Transfers will only be allowed to wells in those areas where the Board, after reviewing all the available and relevant information, determines that the water level in the area proposed to receive the transfer will not decline at a rate in excess of .0025 percent of the Saturated Thickness of the aquifer in the next 3 years.

In making its decision the Board may use the following information obtained by application of the Annual Allowable Withdrawal Model as described on pages 8 and 9 of Technical Manual 25. The Board may use information including but not limited to the trend of change in the level of the aquifer over time from District records, other transfers into the area in proximity to the receiving well, the total usage in proximity to the receiving well, and other factors that would increase the rate of consumptive use in the area of the receiving well in making its decision.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule. See especially "Transfers", page 20, *Part VI; TM-25.*

RULE 12: OFFSETS

The Board may establish Offsets as fees for the transfer of allocations or as part of establishing and operating a District Water Banking program.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related in this Rule.

RULE 13: GROUNDWATER QUALITY

The Board shall implement procedures to monitor and protect the quality of the aquifers underlying the District. All areas in the District shall be considered as Phase I areas until at least September 1, 2003.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule. See especially "Groundwater Quality", pages 19, 20, & 21, *Part VI; TM-25.*

RULE 14: MORATORIUM

A. The Board having found that depletion of the groundwater supply in the Management Area is so excessive that the public interest cannot be protected solely through the implementation of the controls adopted pursuant to Subsection (7) of Section 46-656.25 R.R.S., no additional well permits, except as provided for in Paragraph C below, shall be issued within the Management Area for the period September 1, 2002 through August 31, 2003.

B. Additional groundwater allocations may not be granted, except as provided for in Paragraph C below, within the Management Area for the period September 1, 2002 through August 31, 2003.

C. The Board may, upon further deliberation, and notice and hearing, open designated areas of the District to additional well permits and allocations, subject to the application of a quantitative method for specifying

allowable withdrawal for the area, total allocations granted for the area, and any additional withdrawals that may be allowed in the area, as specified by the quantitative method adopted by the Board. The adopted method shall consider estimates of the following factors for the area under consideration: allowable depletion; specific yield; the shape and dimensions of the spatial area under consideration for management purposes; average saturated thickness of the aquifer within the area; proportion of the saturated thickness the Board will allow to be depleted in 100 years; precipitation recharge; recharge from irrigation application; and the amount of recharge that is available for appropriation in the area.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule.

RULE 15: VARIANCES

The Board may grant variances from the strict application of these rules and regulations upon good cause shown.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule.

RULE 16: PENALTIES

Any groundwater user found to be in violation of these rules and regulations may be required to cease and desist withdrawing groundwater until such time as he is in compliance.

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule.

RULE 17: GENERAL ENFORCEMENT PROVISIONS

The District shall enforce these rules and regulations in conformance with the General Enforcement Provisions set out in Part VI of the District Technical Manual (TM-25).

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule. See especially "General Enforcement Provisions", page 22, Part VI TM-25.

RULE 18: FORMAL ADJUDICATORY HEARINGS

Formal Adjudicatory Hearings shall be conducted in conformance with the procedures set out in the District Technical Manual (TM-25).

See District Technical Manual for technical, administrative, procedural, regulatory, and other materials related to this Rule. See especially "Formal Adjudicatory Hearing", page 23, Part VI TM-25.

RULE 19: DISTRICT TECHNICAL MANUAL

Supplemental Rules and Regulations specified in Part VI of the District Technical Manual (TM-25) are incorporated into, and considered as an integral part of these rules and regulations and are applicable in concert with the rules and regulations specified herein as the Rules and

Regulations for Groundwater Control of the Upper Republican Natural Resources District Management Area.

RULE 20: SEVERABILITY OF RULES

If any rule or any part of any rule herein and/or in the District Technical Manual shall be declared invalid or unconstitutional, such declaration shall not affect the validity or constitutionally of the remaining portions thereof.

Adopted this 2nd day of July 2002.

This amendment to Rules and Regulations for Groundwater Control of the Upper Republican Natural Resources District Management Area shall be effective commencing September 1, 2002.

UPPER REPUBLICAN NATURAL RESOURCES DISTRICT

By _____

Robert Ambrosek, Chairman

ATTEST:

_____

_____

E3-23

UPPER REPUBLICAN NATURAL RESOURCES DISTRICT

TECHNICAL MANUAL

TM-25

EFFECTIVE SEPTEMBER I, 2002 IN CONCERT WITH THE RULES AND REGULATIONS FOR GROUNDWATER CONTROL ORDER NO.25 OF THE UPPER REPUBLICAN NATURAL RESOURCES DISTRICT MANAGEMENT AREA

Parts IV and VI Adopted by the Upper Republican Natural Resources District Board of Directors, **July 2, 2002**

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UPPER REPUBLICAN NATURAL RESOURCES DISTRICT TECHNICAL MANUAL OF POLICIES AND PROCEDURES TM-25

PART I

LEGISLATION ESTABLISHING NATURAL RESOURCES DISTRICTS

Section 2-3201: Natural Resources, Declaration of Intent.

The Legislature hereby recognises and declares that it is essential to the health and welfare of the people of the State of Nebraska to conserve, protect, develop and manage the natural resources of this state. The legislature further recognises the significant achievements that have been made in the conservation, protection, development and management of our natural resources and declares that the most efficient and economical method of accelerating these achievements is by creating natural resources districts encompassing all of the area of the state, as provided by this Act.

The Legislature further declares that the functions heretofore performed by Soil and Water Conservation Districts, Watershed Conservancy Districts, Watershed Districts, Advisory Watershed Improvement Boards and Watershed Planning Boards shall be consolidated and made functions for the Natural Resources Districts," and the governing boards of such districts and boards shall complete, before July 1, 1972, *the necessary transfers and arrangements so that such boards may on that date, begin the operation of Natural Resources Districts, as provided by this Act.*

This legislation created twenty-four Natural Resources Districts in the State of Nebraska. The initial twenty-four (now 23) NRD District boundaries were based on the

approximate hydrologic boundaries of the recognised river basins of the State.

The Upper Republican Natural Resources District, which encompasses Dundy, Perkins, and Chase Counties, began operations on July 1, 1972. On that date, the District accepted the assets, liabilities, and obligations of the Dundy, Chase, and Perkins County Soil and Water Conservation Districts.

PART II

PURPOSE, GOALS AND OBJECTIVES OF THE UPPER REPUBLICAN NATURAL RESOURCES DISTRICT

Purpose

The Board of Directors of the URNRD recognise that the underground aquifer partially underlying the District is a laterally confined aquifer and that there have developed, and will continue to develop, conflicts among users. Such conflicts have been based on a steadily declining water table within the aquifer in the URNRD. Therefore, the actions of the Board become of utmost importance in protecting all uses of groundwater, which include domestic, agricultural, municipal, industrial, wildlife, and recreational uses, from unmanageable declines and from degradation in quality.

Goals

It is the goal of the Upper Republican Natural Resources District Board of Directors to extend groundwater reservoir life to the greatest extent practicable consistent

with beneficial use of the groundwater and best management practices, and to protect the quality of the groundwater aquifers within the District boundaries.

The primary short-term goal of the Upper Republican Natural Resources District is to measure, monitor and allocate the groundwater resource within the District.

Objectives

One objective of the Board is to ascertain the amount of groundwater being withdrawn from the aquifer within the Management Area. A second objective is to reduce the amount of groundwater being withdrawn from the aquifer within the Management Area, relative to the amount that might be withdrawn if no restraints were imposed upon groundwater users. A third objective is continued monitoring of groundwater quality to ensure that the groundwater quality remains the same or is improved.

Information from monitoring of groundwater quality and use is to be used to set groundwater allocations so that the groundwater aquifer will be available for present and future generations. It is believed that reduced consumption of groundwater and protection of groundwater quality within the Management Area will result in a longer economic life for the aquifer and thereby, continued and enhanced prosperity will ensue.

PART III

GOVERNANCE OF THE URNRD

An eleven member Board of Directors governs the Upper Republican Natural Resources District. All eligible electors of the District may vote for Board Members at general

elections. The District is divided into ten sub-districts. One Board Member is elected from each sub-district and one at-large member is elected.

Candidates for sub-district Board positions must reside in the sub-district for which they are elected. The at-large Board member must reside within the boundaries of the Upper Republican Natural Resources District. The Board of Directors will appoint an eligible person to fill any unexpired term.

Board Of Directors

The Board is responsible for establishing District policies, programs, rules and regulations, and adopting the necessary budget, in order to fulfil the responsibilities of the District as authorized and required by law. The Board is also responsible for overseeing management to insure that the policies, programs, regulations, and budget are carried out as intended, and for approving District expenditures. The day-to-day management is the General Manager's responsibility. In general, the Board sets policy and the staff carries it out.

The Board holds regularly scheduled monthly meetings on the first Tuesday of each month, at which time the Board shall take action and make determinations as necessary and required by law. These meeting [sic] shall comply with the Open Meetings Law, and each Director shall receive a copy of meeting notices and agendas.

A majority of the voting members of the Board shall constitute a quorum, and the concurrence of a majority of the Directors present at any regular or special meeting at which such quorum is present shall constitute official

action of the entire Board. If less than a quorum is present at a meeting, no official action shall be taken, and the presiding officer shall adjourn the meeting. If a quorum cannot convene for any reason, the General Manager shall have the authority to approve recurring bills and salaries, and forward them to the District Treasurer for his or her signature, as funds are available in the District treasury.

Each Director present at regular or special meetings shall be entitled to one vote upon each matter submitted to a vote, including the chairman if he chooses to vote. The Board shall follow Robert's Rules of Order in conducting District business. Action taken on any question or motion, duly moved and seconded, shall be by roll call vote of the Board in open session, and the record shall state how each member voted, or if the member was absent or abstaining.

OFFICERS OF THE BOARD

Officers of the Board shall include Chairperson, Vice Chairperson, Secretary, and Treasurer. The officers of the Board are elected by majority vote of Board members present.

The officers shall hold office for a one (1) year term and until his/her successor has been duly elected and qualified, or until he/she vacates the office due to death, disability resignation, relocation, removal, or other disqualification. A vacancy in any office on the Board due to death, disability, resignation, removal, or other disqualification shall be filled by election of the Board for the unexpired term of the office.

Duties

A. Chairperson shall be the principal officer of the Board and subject to the control of the Board. The Chair shall be empowered to make non-policy decisions between meetings in carrying out the works, policies, and intents of the District. He/she will preside at all meetings of the Board of Directors. He/she may sign, with any proper officer, any agreements, contracts, or other instruments, which the board has authorized to be executed. Exceptions would be in cases when the signing and execution shall be expressly delegated by the District Board, or by the bylaws, to some other officer of the Board, or shall be required by law to be otherwise signed and executed. The Chairman shall perform all duties incident to the office of chairman, and the Board may prescribe such other duties as. [sic]

B. Vice Chairperson, in the absence of the Chairperson or in the event of his inability to act, shall perform the duties of the Chairperson. When so acting, he will have all the powers of, and be subject to all the restrictions upon, the Chairperson. The vice-chairperson sh[illegible] perform other duties from time to time that may be assigned to him/her by the Chairperson or by the Board.

C. Secretary-Treasurer shall keep the minutes of the Board, see that all notices are given in accordance with Board policies or as required by law. In general, the incumbent will perform all the duties incident to the office of Secretary-Treasurer and such other duties from time to time that may be assigned to him by the Chairperson or by the Board. He/she shall keep an accurate account of all funds received and expended by the District, be bonded in the amount required by statutes, and see that all approved bills payable are paid and receipts received, and be

empowered to sign checks on the District's account to retire approved bills and debts of the District.

In case of temporary absence of any officer for any reason that the Board may deem sufficient, the Board may delegate the powers and duties of such officer to any other officer, or to any other Director of the Board, for the time of the temporary absence, provided a majority of the Board concurs.

Committee Responsibilities

Committee Responsibilities are divided into different sections represented by five standing Board Committees. The Executive Committee shall appoint membership to the other four standing committees. The committees shall have and exercise duties in the best interests of the District. The committees have individual responsibilities of overseeing District functions and activities and making recommendations to the Board of Directors as necessary to carry out the responsibilities of the District. The Chairperson or the Board, may, from time to time, assign additional duties to specific committees.

A. Executive Committee: The Executive Committee, consisting of the Chairperson, The Vice-Chairperson, and the Secretary-Treasurer, is responsible for Board organization, functions, ethics, and discipline. The Committee oversees personnel (including salary, wages, and benefits), buildings, and equipment needs, as well as general management of the District, and makes recommendations to the Board regarding these responsibilities.

B. Budget Committee: The Budget Committee oversees the financial management and long range planning of the District. The annual budget

of all the District's activities are reviewed and approved by this Committee which then makes recommendations to the Board, prior to Board consideration of approval of the budget.

C. Variance Committee: The Variance Committee meets with all individuals who request a variance from the rules and regulations of the Board. The Committee reports to the Board at a Regular Board meeting. The variance requests are reviewed by the Board and placed on the agenda for the next Regular Board meeting for decision.

1. All information for a variance request should be brought to the NRD Office at Imperial and discussed with the Manager.

2. The Manager will distribute all information concerning the variance to the Variance Committee, all other Board members, and person(s) requesting the variance.

3. The Variance Committee will meet with person(s) requesting a variance at the time set by the Manager to hear the variance request.

4. The Variance Committee will report to the Board at a regular or special Board meeting the information received for the variance requested.

5. The variance request will be voted on at the next regular Board meeting. At that time the Variance Committee will make a recommendation to the Board concerning the variance request.

D. Groundwater Control Committee: The Groundwater Control Committee reviews all information received from the staff, and state and federal agencies. The Committee Make [sic] recommendations to the full

Board on needed studies and research projects; amendments to the Groundwater Control Rules and Regulations; date, time, and place to hold information meetings and public hearings; and material that should be made available to the public at information meetings and public hearings.

E. Education and Information Committee: The Committee oversees both the education and information dissemination activities of the Board, which include the following: habitat, tree planting, public relations, education, and informing the public of District activities.

Standing Committee Membership

Executive Committee

Robert Ambrosek, Chairman
Greg Pelster, Vice Chairman
Kenneth E. Owens,
Secretary/Treasurer

Information and Education Committee

Jerry Kuenning, Chairman
Mike Mosel
Gwen Springer
Floyd Parman

Budget Committee

Donn Gengenbach, Chairman
Kenny Frasier
Kenneth E. Owens
Greg Pelster

Variance Committee

Kenny Owens, Chairman
Kurt Bernhardt
Donn Gengenbach
Jerry Kuenning

Groundwater Control Committee

Greg Pelster, Chairman
Kurt Bernhardt
Dean Large
Floyd Parman

Upper Republican NRD Staff

Imperial Office

308-882-5173

Bob Hipple, Manager
Debra Hayes, Administrative Assistant
Mike Nesbitt, Conservation Programs Coordinator
Mike Smith, Water Programs Coordinator
Heather Francis, Conservation & Information Specialist
John Lemon, Conservation Technician
Christy Colson, Water Quality Conservation Technician

URNRD Field Office Secretaries

Located in NRCS Offices
Rebecca Spady, Imperial 308-882-4263
Patricia Clough, Grant 308-352-4776
Wilma Zimbelman, Benkelman 308-424-2696

PART IV

CONVERSION TABLES
And
ANNUAL ALLOWABLE WITHDRAWAL FORMULA

WATER EQUIVALENTS

1-acre-foot	325,850 gallons
1 acre-inch	27,154 gallons

1 acre-foot covers 1 acre of land 1 foot deep

1 acre-inch covers 1 acre of land 1 inch deep

10.833 acre-feet	1 in./ac. on 130 acres

157.08 acre-feet	14.5 in./ac. on 130 acres
98.05 hr. @ 600 gpm	1 in./ac. on 130 acres
73.54 hr. @ 800 gpm	1 in./ac. on 130 acres
58.83 hr. @ 1000 gpm	1 in./ac. on 130 acres

ANIMAL UNIT EQUIVALENTS

Slaughter Steer/Heifer	1.0
Cow – 1000 Pounds	1.0
Dairy Cow	1.4
Cow/Calf Pair	1.4
Sheep (Ewe)	0.1
Swine – Under 55 pounds	0.05
Swine – Over 55 pounds	0.4
Horse – (Medium Size)	1.0

ANNUAL ALLOWABLE WITHDRAWAL FORMULA

In the evaluation of the Annual Allowable Withdrawal for any purpose, the following three-mile radius circle formula shall be used:

$$A = \frac{640(D)(S.Y.)\ 3.1416\ R^2\ H}{(1.0 - Ir)t} + \frac{640(f)(Pr)\ 3.1416\ R^2}{12(1.0 - Ir)}$$

where,

A = Annual allowable withdrawal within the circle being evaluated in acre-feet per year
D = Allowable depletion (expressed as a decimal)
S.Y. = Specific yield (dimensionless)
R = Radius of circle (miles)
H = Average saturated thickness within the circle (feet)

t = Time period during which depletion, **D**, occurs (years)

Pr = Precipitation recharge (inches/yr.)

f = Fraction of **Pr** that is available for appropriation in the circle (dimensionless)

Ir = Fraction of **A** that returns to the aquifer as deep percolation, i.e., irrigation return (dimensionless)

The constants in the above equation are:

D = 0.25, **R** = 3 miles, **t** = 100 years, **f** = 0.2 and **Ir** = 0.15

Saturated thickness, H, shall be determined by evaluation of the 3 year average contour maps developed from spring well measurements conducted by the NRD as well as other pertinent available water level data.

Specific yield, S.Y., and **Precipitation Recharge, Pr**, will be determined from Figure 19, page 34 and

Figure 20, Page 40, respectively, **"Simulated Response of the High Plains Aquifer to Ground-Water Withdrawals, Upper Republican Natural Resources District, Nebraska,"** Water-Resources Investigations Report 95-4014, USGS, 1995, as well as other pertinent available water level data.

This formula was developed by the State of Colorado and is available in the publication:

RULES AND REGULATIONS FOR THE MANAGEMENT AND CONTROL OF DESIGNATED GROUND WATER

2 CCR 410-1

Effective Date: May 1, 1992 – Amended: March 30, 1995 – Re-amended: April 1, 1997
Re-amended: February 1, 2001

STATE OF COLORADO
GROUND WATER COMMISSION
Hal D. Simpson
Executive Director
1313 Sherman Street
Denver, Colorado 80203

Definitions – Unless expressly stated otherwise the following terms when used in these Rules shall have the meaning indicated in this Rule.

"Allowed Average Annual Amount of Withdrawal" means the average amount of water in acre-feet that a permittee may withdraw from a well in a calendar year.

"Saturated Aquifer Material(s)" means those aquifer materials containing sufficient water that can be drained by gravity and placed to beneficial use.

"Specific Yield" means the volume of water which can be drained by gravity from a saturated volume of aquifer material divided by the volume of material. This ratio can be expressed as a percentage.

"Three-Mile Circle" or "Circle" means a circle with a radius of three miles centered at the location of the well or proposed well used to appropriate water from the High-plains Aquifer.

An Example Calculation using the AAW Formula to solve for –

A = Annual allowable withdrawal within the circle being evaluated in acre-feet per year

where,

D	**=**	**.25**	**Allowable depletion (expressed as a decimal)**
S.Y.	**=**	**0.2**	**Specific yield (dimensionless)**
R	**=**	**3**	**Radius of circle (miles)**
H	**=**	**200**	**Average saturated thickness within the circle (feet)**
t	**=**	**100**	**Time period during which depletion, D, occurs (years)**
Pr	**=**	**2**	**Precipitation recharge (inches/yr.)**
f	**=**	**0.2**	**Fraction of Pr that is available for appropriation in the circle (dimensionless)**
Ir	**=**	**0.15**	**Fraction of A that returns to the aquifer as deep percolation, i.e., irrigation return (dimensionless)**

$$A = \frac{640(D)(S.Y.)\ 3.1416\ R^2\ H}{(1.0\ \ Ir)t} + \frac{640(f)(Pr)\ 3.1416\ R^2}{12(1.0\ \ Ir)}$$

$$A = \frac{(640)(.25)(0.2)(3.1416)(3^2)(200)}{(1.0 - 0.15)100} + \frac{(640)(0.2)(2)(3.1416)(3^2)}{12(1.0 - 0.15)}$$

$$A = \frac{(904.78)(200)}{85} + \frac{804.25(9)}{10.2}$$

A = 2838.53 Acre Feet of annual allowable withdrawal

This number is compared to the total acre feet of allocated water for all the Certified Irrigated Acres contained within the circle as part of the evaluation of the impact of any proposed transfers or other water management techniques.

PART V

PROPOSED RULES

Proposed Rule 1 BANKING

The Board hereby authorizes the establishment of a groundwater bank to facilitate the transfer of groundwater for beneficial uses within the District. No deposits or withdrawals will be allowed until September 1, 200X.

A. Definition:

1. **Account** shall mean the right-to-use all or a portion of an allocation held in the Bank in the name of a particular entity.

2. **Bank** is the institutional entity operated by the Upper Republican Natural Resources District with authority to hold and distribute rights-to-use allocations that have been deposited.

3. **Deposit** shall mean the right-to-use all or a portion of an allocation that has been removed from a groundwater user's allocation for a use to be facilitated by the Bank.

4. **Offset** shall mean the amount of groundwater deducted from a Deposit prior to withdrawal and held in the account of the District for conservation or other purposes

5. **Withdrawal** shall mean removal of a deposit for use by the groundwater user that deposited the same, or by another groundwater user with the consent of the depositor and the Bank.

B. Operation of the Bank

1. Groundwater users having unused groundwater allocation, whether granted for irrigation, commercial livestock, industrial or municipal

purposes, may deposit the right-to-use same in the Bank by designating in acre-feet the amount to be deposited.

2. Withdrawals of groundwater from the Bank must be designated in acre-feet and be withdrawn only by an authorized user.

3. The District shall operate the Bank.

4. Deposits must be accepted and withdrawals must be approved by the Board prior to implementation.

5. Variances may be granted by the Board to facilitate approved withdrawals.

6. All offsets shall be held in the account of the District for retirement, conservation or other uses.

7. Records of deposits and withdrawals shall be maintained by the District and shall be available to the public.

C. Offsets

Upon further deliberation, and notice and hearing, the Board may require offsets of groundwater, expressed in acre-feet, to be deducted from deposits prior to withdrawals and held in the account of the District pursuant [sic] the following principles:

1. Withdrawals for use on the same Certified Irrigated Tract, as defined herein, shall not be subject to offset.

2. Withdrawals for use by the person that made the deposit, or with the consent of that person, on lands not contiguous but within a one-mile radius shall be subject to an offset of up to 5%.

3. Withdrawals for use by the person that made the deposit, or with the consent of that person, on lands not contiguous but within a three-mile radius shall be subject to an offset of up to 10%.

4. Withdrawals for use by the person that made the deposit, or with the consent of that person, on lands not contiguous and outside the three mile radius shall be subject to an offset of up to 10% plus up to 1% for each mile beyond said three mile radius.

5. In addition to the offset imposed by the distance of the withdrawal, additional offsets may be imposed as follows:

    a. When the saturated thickness of the aquifer at the point of withdrawal is less than the saturated thickness of the aquifer at the point of deposit, an offset of up to 5% for each 20 feet of difference in saturated thickness, or part thereof, shall be imposed.

    b. Withdrawals for use in Critical Townships of deposits from Non-Critical Townships shall be subject to an additional offset of up to 25%.

    c. Withdrawals for industrial or manufacturing use of deposits of irrigation, commercial livestock, or municipal allocations shall be subject to an additional offset of up to 20%.

6. All offsets shall be determined by the Board.

PART VI

SUPPLEMENTAL RULES AND REGULATIONS

FLOWMETERS

Supplemental Rule 2

(See also Rules and Regulations (R&R), especially Rule 2 "Flowmeters", page 4, R&R)

A. All wells requiring District permits shall be equipped with flowmeters before being placed in operation, in accordance with the following specifications.

1. Definitions of terms:

(a) Meter – Shall mean a mechanical or sensor device that measures and totalizes the amount of water flowing from a well.

(b) Manufacturer – Shall means [sic] the company that produces meters for the supplier or dealer.

(c) Supplier or Dealer – Shall mean the company that sells or provides meters to installer, groundwater user, or District.

(d) Installer – Shall mean the company or groundwater user that installs meters on the groundwater user's irrigation equipment.

(e) Pipe – Shall mean any material capable of transporting water.

B. Meters installed under these specifications shall comply with the applicable provisions of American National Standards Institute, American Water Works Association's standard number C704-70.

C. Each meter shall be installed and calibrated to pipe size.

D. Flowmeters shall be of the velocity propeller or sensor type, and made of noncorrosive materials

E. The meter registry shall have a visual volume recording totalizer, which shall record in acre-feet, acre-inches, or gallons.

F. The registry shall be protected from the elements. Totalizers shall have sufficient capacity to record for the period of one year the quantity of water diverted from each well. Totalizers shall be direct reading and the multiplier shall be clearly indicated in which the rate of flow can be determined by timing.

G. The meter shall have a rated accuracy of plus or minus two (2) percent of actual flow within the range of flow for which the meter is designed. The meter shall be capable of accurately registering the expected operating range of discharge.

H. The meter shall have a pressure rating to fit the application used within its designed pressure range.

I. The meter size, serial number and the direction of flow shall be clearly stamped on the body of the meter. The inside pipe diameter for which the meter has been calibrated shall be clearly shown on the meter to the nearest 0.001 of an inch.

J. The meter shall be installed in accordance with the manufacturer's specifications and in such manner that there will be a full pipe flow of water at all times while water is being measured.

K. The meter shall be placed in the pipe not less than five pipe diameters downstream from any valve, elbow or other obstructions, which might create turbulent flow or as, recommended by the manufacturer.

There shall also be at least one pipe diameter of unobstructed flow on the downstream side of the meter.

L. The meter propeller shaft shall be positioned parallel to and aligned with the centerline of the pipe.

M. Diversions from wells connected to serve multiple points of use shall not be made prior to the water passing through the meter for the individual wells. Wells with diversions before the meter in place and connected to serve multiple points of use, shall be modified no later than April 1, 2003 to comply with this rule.

N. Meters should be kept clear of debris [sic] other material, which might impede operation.

O. When meters are removed for servicing or replacement, records of meter readings should be kept.

P. It shall be unlawful for any person to willfully injure, alter, remove, reset, adjust, manipulate, obstruct, or in any manner interfere with or tamper with any flowmeter within the Management Area for the purpose or with the intent to produce an incorrect, inaccurate or misleading measurement, without District consent, or to cause, procure or direct any other person to do so.

Q. The District staff shall periodically check flowmeters on a random basis for reading and proper operation. The District staff may seal all flowmeters within the Management Area. The District will notify the groundwater user in advance that it intends to enter upon his land for such purposes. No seal shall be removed without prior approval of the District.

R. Any malfunctioning flowmeter must be reported to the District Office at Imperial, Nebraska, within Twenty-four (24) hours after discovery. During the malfunctioning period, a substitute meter from the

District, if available, shall be used to determine water consumption. If no such meter is available, any reasonable method of determining water consumption may be utilized.

S. The District may require any groundwater user to provide information that will enable the District Staff to determine the amount of energy used to operate any well on which a meter is required. The groundwater user shall provide such information, or the groundwater user shall authorize the District Staff to procure such information from the entity, which provided such power. The District Staff shall seek such information in the event a flowmeter is malfunctioning, or if either the owner or operator or the District Staff has reason to believe the flowmeter reading is incorrect. If any power source on any well within the groundwater management area is equipped with an hour meter, the District may require the groundwater user to provide appropriate readings from said hour meter.

IRRIGATED ACRES AND TRACTS

Supplemental Rule 3

(See also Rules and Regulations (R&R), especially Rule 3 "Irrigated Acres and Tracts", page 4, R&R..)

The following regulation applies to the determination, identification and certification of Certified Irrigated Acres and Certified Irrigated Tracts.

A. The number of Certified Irrigated Acres belonging to or under the control of groundwater users who were irrigating their lands prior to May 1, 1978, shall be the number of acres irrigated by such groundwater user during 1977, or the average number of acres irrigated during the years 1972 through 1976, whichever is greater.

B. The number of Certified Irrigated Acres for lands placed under irrigation after May 1. 1978, shall be determined by the Board at a public meeting after consideration of the following criteria.

1. Local F.S.A. records, if available.

2. County Assessors records, if available.

3. Suitable aerial photographs.

4. Evidence adduced by the groundwater user or the District at any public meeting of the Board.

C. Certified Irrigated Tracts shall be identified by government survey descriptions. In all cases the description of each groundwater user's irrigated tract, or tracts, as contained in any recorded deed, or lease, shall be definitive.

D. No Certified Irrigated Tract may exceed 640 contiguous acres.

Supplemental Rule 4

CRITICAL TOWNSHIPS

(See also Rules and Regulations (R&R), especially Rule 4 "Critical Townships", page 4, R&R.)

A. The saturated thickness of the aquifer shall be the average saturated thickness of the aquifer for the three-year period ending with spring observation and March continuous recorder well groundwater level measurements throughout the Management Area. The groundwater table shall be determined by averaging the annual groundwater measurement for the three-year period ending with spring observation and March continuous recorder well measurements. Computations made shall be made by the "water level

contouring procedure". Continuous recorder well shall mean a well installed for continuous recording of groundwater levels; and an observation well shall mean an irrigation, domestic, industrial, or other well measured for groundwater table changes by the District each spring and fall.

B. On September 1,2002, the following Townships are designated, or remain designated as critical:

Dundy County

Township North	Range West	Date Designated or Re-Designated	Minimum Period Ends
1	37	2002	2007
1	38	1998	2003
1	39	2001	2006
2	36	2000	2005
2	37	2002	2007
2	38	2002	2007
2	39	1998	2003
2	40	1999	2004
2	41	1999	2004
2	42	1999	2004
3	37	2002	2007
3	38	2001	2006
3	39	2001	2006
3	40	2002	2007
3	41	1999	2004
3	42	1999	2004
4	36	1998	2003
4	37	2001	2006
4	38	2002	2007

Dundy County

Township North	Range West	Date Designated or Re-Designated	Minimum Period Ends
4	39	2000	2007
4	40	2002	2007
4	41	2002	2007
4	42	1998	2003

Chase County

Township North	Range West	Date Designated or Re-Designated	Minimum Period Ends
5	37	1999	2004
5	38	2000	2005
5	39	1999	2004
5	40	1999	2004
5	41	2002	2007
5	42	1998	2003
6	37	2001	2006
6	38	2001	2006
6	39	2000	2005
6	40	1999	2004
6	41	2002	2007
6	42	2002	2007
7	36	2002	2007
7	37	2001	2006
7	38	2000	2005
7	39	1999	2004
7	40	1998	2003
7	41	2002	2007
7	42	2002	2007
8	36	2001	2006
8	37	2001	2006
8	38	2001	2006
8	39	2000	2005
8	40	2001	2006
8	41	2002	2007
8	42	2002	2007

Perkins County

Township North	Range West	Date Designated or Re-Designated	Minimum Period Ends
9	35	2001	2006
9	36	2002	2007
9	37	2002	2007
9	38	1998	2003
9	39	1998	2003
9	40	2002	2007

Perkins County

Township North	Range West	Date Designated or Re-Designated	Minimum Period Ends
10	37	2001	2006
10	38	2001	2006
10	39	2001	2006
10	40	2001	2006
10	41	2001	2006
11	37	2001	2006
11	38	2001	2006
11	39	2001	2006
11	40	2001	2006
11	41	2001	2006
12	35	2002	2007
12	36	2001	2006
12	37	2001	2006
12	38	2001	2006
12	39	2001	2006
12	40	2002	2007
12	41	2000	2005

Supplemental Rule 5 WELL SPACING

(See also Rules and Regulations (R&R), especially Rule 5 "Well Spacing", page 5, R&R.)

The following regulation applies to the spacing of all wells subject to these rules and regulations and receiving permits from the Upper Republican Natural Resources District.

(PLEASE SEE TABLE ON NEXT P AGE FOR DETAILS)

MINIMUM SPACING REQUIREMENTS FOR WELLS DRILLED AFTER AUGUST 31, 1999

TYPE OF NEW WELL	NEW WELLS		REPLACEMENT WELLS			
			Non-Critical Townships		Critical Townships	
	Non-Critical Townships	Critical Townships	Well to be replaced is not within 1320 feet of another land owner's well(s)	Well to be replaced is within 1320 feet of another land owner's well(s)	Well to be replaced is not within 1320 feet of a domestic or livestock well, or 5280 feet of any other well(s) belonging to another land owner	Well to be replaced is within 1320 feet of a domestic or livestock well, or 5280 feet of any other well(s) belonging to another land owner
	Minimum distance to any well(s) belonging to another land owner					
Domestic	Not regulated	Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
Livestock	Not regulated	Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
Commercial Livestock	1320 feet from well(s) owned by others	1320 feet from domestic and livestock wells & 5280 feet from all other well(s) owned by others	1320 feet from domestic, livestock, irrigation, industrial, commercial livestock, or municipal well(s) owned by others	Replacement well must be drilled within 150 ft of well to be replaced	1320 feet from domestic or livestock well, and 5280 feet from irrigation, industrial, commercial livestock, or municipal well(s) owned by others	Replacement well must be drilled within 150 ft of well to be replaced
Irrigation	1320 feet from well(s) owned by others	1320 feet from domestic and livestock wells & 5280 feet from all other well(s) owned by others	1320 feet from domestic, livestock, irrigation, industrial, commercial livestock, or municipal well(s) owned by others	Replacement well must be drilled within 150 ft of well to be replaced	1320 feet from domestic or livestock well, and 5280 feet from irrigation, industrial, commercial livestock, or municipal well(s) owned by others	Replacement well must be drilled within 150 ft of well to be replaced
Industrial	1320 feet from well(s) owned by others	1320 feet from domestic and livestock wells & 5280 feet from all other well(s) owned by others	1320 feet from domestic, livestock, irrigation, industrial, commercial livestock, or municipal well(s) owned by others	Replacement well must be drilled within 150 ft of well to be replaced	1320 feet from domestic or livestock well, and 5280 feet from irrigation, industrial, commercial livestock, or municipal well(s) owned by others	Replacement well must be drilled within 150 ft of well to be replaced
Municipal	1320 feet from well(s) owned by others	1320 feet from domestic and livestock wells & 5280 feet from all other well(s) owned by others	1320 feet from domestic, livestock, irrigation, industrial, commercial livestock, or municipal well(s) owned by others	Replacement well must be drilled within 150 ft of well to be replaced	1320 feet from domestic or livestock well, and 5280 feet from irrigation, industrial, commercial livestock, or municipal well(s) owned by others	Replacement well must be drilled within 150 ft of well to be replaced

Supplemental Rule 9

ALLOCATIONS OF GROUNDWATER

(See also Rules and Regulations (R&R), especially Rule 9 "Allocations of Groundwater" pages 7 & 8, R&R..)

A. A basic allocation of 72.5 acre inches per Certified Irrigated Acre shall be granted for the 5-year allocation period.

1. The amount of carryforward for each Certified Irrigated Tract shall be determined on December 31, of the last year of the allocation period.

2. The carryforward so determined may be used by the groundwater user owning or controlling the irrigated tract in any manner not otherwise prohibited by these rules and regulations.

3. Certified Acres irrigated by wells in service for the entire allocation period shall receive the basic allocation.

4. Certified Acres irrigated by wells drilled and equipped after commencement of the allocation period shall receive a reduced allocation. The reduction shall be computed as follows:

a. The basic allocation shall be divided by the number of calendar years in the allocation period.

b. Acres irrigated by wells drilled and equipped prior to July 1 of any calendar year during the allocation period shall not receive an allocation for any prior year, but shall receive a full allocation for that year.

c. Acres irrigated by wells drilled and equipped between July 1 and August 31 of any calendar year in the allocation period shall not receive an allocation for any

prior year and shall receive one-half of that year's allocation.

d. Acres irrigated by wells drilled and equipped after August 31 of any calendar year during the allocation period shall not receive an allocation for any prior year, nor for that year.

B. Acres being removed from the Federal Conservation Reserve program shall be granted the carryforward allocated to the acres at the time of enrollment, provided:

1. Such acres were equipped to be irrigated at the time they were enrolled in the Conservation Reserve Program.

2. Upon removal from the Conservation Reserve Program such acres shall then be considered as acres becoming first irrigated on the day said acres are re-equipped to be irrigated, and an allocation for the remaining portion of the relevant allocation period shall be determined.

C. The carryforward so determined may be used by the groundwater user owning or controlling the irrigated tract in any manner not otherwise prohibited by these rules and regulations.

D. Each municipality using groundwater withdrawn from the Management Area is hereby granted without further application, an allocation of groundwater for each calendar year beginning with 1988, computed as follows:

1. An allocation of gallons equal to the number produced by multiplying the population of the municipality as determined by the most recent Federal Census by 91,250; and

2. An additional allocation of acre inches stated in gallons equal to the number produced by multiplying one third (1/3) of the non-agricultural acres of land within the municipality by the annualized allocation for irrigated acres as stated in Paragraph A. Each municipality shall report the total number of non-agricultural acres within its limits to the Board at the time of any annexation or elimination of territory to or from its limits.

E. For every flowmeter under the ownership or control of each groundwater user, the District Staff shall take the final meter reading no sooner than September 15, and not later than December 31, of the same year on forms provided by the District. In addition, the District shall make random year-end meter readings as well as spot checks during the irrigation season. The District will, after year-end readings, notify each groundwater user of the amount of water withdrawn during the foregoing year and the amount of carry-forward and allocation remaining.

Supplemental Rule 11

TRANSFERS

(See also Rules and Regulations (R&R). especially Rule 11 *"Transfers", page* 9, *R&R)*

Transfers of allocations from a Tract or for a use for which the same has been granted to another tract or use may be accomplished only under the following conditions:

A. The tracts must be under the ownership or control of the same groundwater user except as provided for in Rule 12, Order No.25. No transfer may occur without the knowledge and consent of the owners of all lands involved, including any lands over which the groundwater is transported.

B. Groundwater allocations in non-critical townships may not be transferred to tracts within Critical Townships.

Supplemental Rule 13

GROUND WATER QUALITY

(See also Rules and Regulations (R&R), especially Rule 13 "Groundwater Quality", page 9, R&R.)

Definitions:

A. Contamination or Contamination of Groundwater shall mean nitrates or other material that enter the ground water due to action of any person and cause degradation of the quality of ground water sufficient to make such ground water unsuitable for present or reasonably foreseeable beneficial uses.

B. Subirrigation or Subirrigated Land shall mean the natural occurrence of a ground water table within the root zone of agricultural vegetation, not exceeding ten feet below the surface of the ground.

C. Best Management Practices shall mean schedules of activities, maintenance, procedures, and other management practices utilized to prevent or reduce present and future contamination of ground water which may include irrigation scheduling, proper timing of fertilizer and pesticide application and other fertilizer and pesticide management programs.

D. Point Source shall mean any discernible, confined and discreet conveyance, including, but not limited to, any pipe, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, vessel, other floating craft, or other conveyance, over which the Department of Environmental Quality has regulatory authority and from which a substance which can cause or contribute

to contamination of ground water is being or may be discharged.

E. Rotation shall mean a recurring series of use and non-use of an irrigation well on an hourly, daily, weekly, monthly, or yearly basis.

E [sic].Phase I shall mean all areas within the District in which levels of nitrate nitrogen contamination, or any contaminant harmful to health or the environment is 0% to 40% of, the allowable level as determined by the Nebraska Department of Environmental Quality. On the effective date of this Order the entire territory of the Upper Republican Natural Resources District is Phase I.

G. Phase II shall mean all areas within the District boundaries so designated by the Board in which levels of nitrate nitrogen contamination, or any contaminant harmful to health or the environment, are over 40%, but less than 60%, of the allowable level as determined by the Nebraska Department of Environmental Quality. Phase II areas shall be designated only after dissemination to the public the boundaries of such proposed areas and the rules and regulations pertaining thereto and the conduct of one or more public information meetings followed by a public hearing after which the Board may designate Phase II areas of not less than 6 square miles with rules and regulations pertaining to ground water quality in such areas.

H. Phase III shall mean all areas within the District boundaries so designated by the Board in which levels of nitrate nitrogen contamination, or any contaminant harmful to health or the environment are 60%, or over, of the allowable level as determined by the Nebraska Department of Environmental Quality. Phase III areas shall be designated only after

dissemination to the public of the boundaries of such proposed areas and the rules and regulations pertaining thereto and the conduct of one or more public information meetings followed by a public hearing after which the Board may designate Phase III areas of not less than 6 square miles with rules and regulations pertaining to ground water quality in such areas.

I. Certified Laboratory shall mean any laboratory within or outside the State of Nebraska certified and approved by the Nebraska Department of Environmental Quality.

J. Ground Water Quality Controls shall mean the rules and regulations which may be proposed or adopted for ground water quality and based on the three (3) phase program defined above.

K. Chemical means any fertilizer, fungicide, herbicide, or pesticide mixed with the water supply.

L. Fertilizer means any formulation or product used as a plant nutrient, which is distributed on lands in the District, and/or intended to promote plant growth, and contains one or more plant nutrients recognized by the Association of American Plant Food Control Officials in its official publications.

Implementation Processes and Procedures:

Deep soil testing, ground water well testing and standard soil sampling will be used to determine contaminant levels throughout the district and to determine the geographic and stratigraphic boundaries of any territory for which controls for ground water quality may be proposed.

A. Controls, rules, and regulations that may be proposed for ground water quality will be based on a three-phase program. Phase I shall include all territory in which levels of nitrate nitrogen contamination, or any

contaminant harmful to health or the environment, are 0% to 40% of the allowable level as determined by the Nebraska Department of Environmental Quality. Phase II shall include all territory in which levels of nitrate nitrogen contamination, or any contaminant harmful to health or the environment is over 40%, but less than 60%, of the allowable level as determined by the Nebraska Department of Environmental Quality. Phase III shall include all territory in which levels of nitrate nitrogen contamination, or any contaminants harmful to health or the environment, is 60%, or over, of the allowable level as determined by the Nebraska Department of Environmental Quality.

B. In Phase I territories yearly monitoring ground water samples will be conducted by the District.

C. When it is determined by the District, or there is reasonable cause to believe that the identified contamination is point source contamination; the District will request the Nebraska Department of Environmental Quality to make a determination if the contamination is point source.

D. The District will take ground water and deep soil samples to determine whether ground water is contaminated. Ground water samples will be taken in not less than fifty (50) locations throughout the District. If a particular sample indicates contamination in excess of the levels established for Phase II or Phase III, the District will take a minimum of twelve (12) additional ground water samples in a radius of three (3) miles or the identified contamination. The District will make a map of the subject area divided into four (4) equal areas from the location of the ground water sample source, which shows contamination. The total area of said map would be approximately 6 miles square. Should 25% of the not less

than twelve (12) samples taken indicate contamination of more than 40% of the allowable level is determined by the Nebraska Department of Environmental Quality, the subject shall become designated a Phase II area. Should 25% of the not less that [sic] twelve (12) samples taken indicate contamination of 60%, or more of the allowable level as determined by the Nebraska Department of Environmental Quality, the subject shall become designated a Phase III area. If villages, cities or towns lie in the said three- (3) mile radius, the water samples shall be taken [sic] the municipal wells as one of the required twelve (12) samples.

E. The District will initiate education programs for ground water users regarding non-point and point source pollution.

F. The District will initiate a ground water quality study which will include deep soil testing, ground water sampling to identify types of contamination, identification of the best management practices to control contamination, and other research as funds become available.

G. In Phase II areas the District may:

1. Require ground water users to take nitrate nitrogen and irrigation management training and education.

2. Implement irrigation scheduling.

3. Require ground water users to limit commercial fertilizer applications to University of Nebraska published recommendations.

4. Require that soil samples be taken to determine nitrates remaining in the soil at 1, 2 and 3 foot levels.

5. Require nitrogen application use be reported to the District on forms to be provided.

6. Require all types of commercial fertilizer use to be reported to the District on forms to be provided

H. In Phase III areas the District may:

1. Implement any rule, regulation or control authorized for Phase II areas.

2. Restrict the use of fall and winter application of commercial nitrogen fertilizers in designated fields for spring planted crops unless inhibitors approved by the District are used in conjunction with such applications.

3. Implement other restrictions on chemical use as determined necessary or advisable by investigations, studies, or research.

I. All Areas in the District are considered as Phase I areas at least until September 1, 2003.

Supplemental Rule 17

GENERAL ENFORCEMENT PROVISION

(See also Rules and Regulations (R&R), especially Rule 17 *"General Enforcement Provisions", page* 10, *R&R.)*

The District shall enforce the provisions of the Groundwater Management and Protection Act, and all rules and regulations adopted pursuant thereto by the issuance of cease and desist orders and by bringing, or defending, appropriate actions in the district court of the county in which any violations occur for enforcement of such orders. Cease and desist orders may be issued for any violation of any rule or regulation of the District.

A. Any person within the District, or the Board on its own motion, may file a written complaint. Complaints shall be filed at the District office, 135 West 5th Street, Imperial, Nebraska. 69033.

B. The District shall investigate the alleged violation. Upon completion of the investigation, the District Staff shall file a report with the Board and deliver copies of the report to the alleged violator and to the complainant, if other than the Board, in person, or shall transmit the same by certified mail.

C. If the District staff finds there is reasonable cause to believe that a groundwater user is at the time of investigation, or was at the time complained of, in violation of District rules and regulations, then said report shall be accompanied by a formal notice of the alternative actions available to the alleged violator. Alternative actions available to the person complained against shall be:

1. Agree with and accept as true and correct the District staffs findings that the alleged violation has in fact occurred or is occurring, consent to cease and desist from continuing or allowing the reoccurrence of such violation, and submit a plan and schedule of compliance. The District shall determine whether the plan and schedule will bring that user into compliance with District rules and regulations. If the Board determines that the proposed plan and schedule are adequate, it shall approve such plan and schedule of compliance.

2. Reject the findings of the report, and within 30 days request a formal adjudicatory hearing.

D. The Board shall notify the person filing the complaint of any action. If no objections to the action of the Board are received, the action of the Board on the written complaint shall be considered as final.

E. If the person filing the complaint objects to the Board action, he may within 30 days of the Board action, request a formal adjudicatory hearing.

F. An official record shall be made of the formal adjudicatory hearing requested by the alleged violator, by the complainant, or by the Board on its own motion. The Board shall deliberate the record and take action on the issue. The recourse to Board action by either the complainant or the alleged violator is by appeal with the district court

G. When an alleged violator has been notified of Board action and such alleged violator has failed to respond thereunder, or has failed to appear at any properly scheduled formal adjudicatory hearing, the Board shall:

1. Review the complaint and the report, as well as any other pertinent information; and

2. Issue such order or orders in accordance with these rules and regulations, as it deems appropriate.

Supplemental Rule 18

FORMAL ADJUDICATORY HEARINGS

(See also Rules and Regulations (R&R), especially Rule 18 *"Formal Adjudicatory Bearings," page* 10, *R&R.)*

A. Formal Adjudicatory Hearings will be conducted by the District for the following purposes:

1. Any purpose set out in the Rules and Regulations of the District or in the Technical Manual, which is in effect in concert therewith.

2. From an adverse decision on a request for variance when judicial review will be sought by the applicant for said variance.

3. To resolve disputes between groundwater users or others, pertaining to illegal irrigation groundwater run off or any other dispute on a majority vote by the Board of Directors.

4. Prior to the issuance of a cease and desist order on a majority vote of the Board of Directors.

B. Any groundwater user aggrieved by any action of the District may request a formal adjudicatory hearing within 30 days of the action complained of.

C. A hearing examiner shall conduct formal hearings. The presence of Board members shall not be required at any hearing. The hearing examiner shall be a person deemed to be knowledgeable in the procedures set out in these rules and regulations and shall conduct the hearing in a manner that provides fairness to all parties.

D. The District shall prepare a notice setting the time and place of the formal hearing.

E. The Board may grant continuances and the Board may at any time order a continuance on its own Motion.

F. The Board may require stipulations on procedure to define the issues, or for any purpose designed to expedite the matter or to insure substantial due process or fairness.

G. Ordinarily, opening statements and/or oral arguments following the close of the presentation of evidence will be permitted only insofar as such statements and/or arguments relate to the presentation and explanation of evidence.

H. Submission of briefs may be requested or permitted by the Board

I. An official record of any official hearing conducted pursuant to statute or the rules and regulations of the Board shall be preserved in the official [sic] taken at the hearing. Such records shall include all testimony and exhibits presented at the hearing. Such record shall whenever possible be kept by a court reporter to be procured by the District. Such record or a copy thereof shall be kept on file in the office of the District. The costs of the record and the hearing examiner, and other related costs may be assessed against the unsuccessful party or parties either after a final decision is rendered by the Board, or after the conclusion of any litigation that may ensue.

J. The Board may deliberate the record as a quasi-judicial body under the provisions of 84-1409(i)(ii), R.R.S. without complying with the Nebraska public meetings laws.

K. All orders and decisions of the Board shall be transmitted to the parties directly involved in the hearing by certified mail.

L. The Board may at any time order the District staff to make an investigation into any matter within the jurisdiction of the Board or order any hearing which the Board is authorized either by law or inherent power to conduct. In the event of an investigation, the Board may request the attendance of any party.

Supplemental Rule 19

DISTRICT TECHNICAL MANUAL

All contents of Part IV, Supplemental Rules and Regulations herein of the District Technical Manual are

incorporated into, and considered an integral part of the District groundwater rules and regulations, and are applicable in concert with the Rules and Regulations for Groundwater Control of the Upper Republican Natural Resources District Management Area – Order No.25 (R&R).

Supplemental Rule 20

SEVERABILITY OF RULES

If any part of this District Technical Manual or any rule or part of any rule in the Rules and Regulations for Groundwater Control of the District shall be declared invalid or unconstitutional, such declaration shall not affect the validity or constitutionally of the remaining portions thereof.

Adopted this 2nd day of July 2002.

This Technical Manual for the Upper Republican Natural Resources District shall be effective in concert with the Rules and Regulations for Groundwater Control of the Upper Republican Natural Resources District Management Area (Order No.25), commencing September 1, 2002.

UPPER REPUBLICAN NATURAL RESOURCES DISTRICT

By_____
Robert Ambrosek, Chairman

ATTEST:

_____
Kenneth E. Owens, Secretary

APPENDIX E

MIDDLE REPUBLICAN NATURAL RESOURCE DISTRICT

Current Middle Republican NRD

Ground Water Management Area Plan Rules and Regulations

Adopted July 1, 1998

Revised July 1, 2000

Rules and Regulations

Authority – These rules and regulations are adopted pursuant to the authority granted in the Nebraska Ground Water Management and Protection Act, Sections 46-656.01 to 46-656.67.

Purpose – The purposes of the management area herein designated are:

1. To maintain, in accordance with the districts' ground water management plan, a ground water reservoir life of at least seventy five (75) years,

2. Protect ground water quality,

3. Allow for the integrated management of hydrologically connected ground water and surface water.

Rule 1. Management Area Designation and Boundaries – A ground water management area is hereby designated in the Middle Republican Natural Resources District. The geographic boundary of such management area will coincide with the boundaries of the Middle Republican Natural Resources District. The stratigraphic boundary of the area is from the land surface to the base of

the underlying sand and gravel layers that contain the water bearing material. The base of the sand and gravel layers rest on impervious layers of Niobrara Chalk, Pierce Shale or formations from the White River Group.

Rule 2. Definition –

2.1 Act: The Nebraska Ground Water Management and Protection Act.

2.2 Board: The elected board of directors of the Middle Republican Natural Resources District.

2.3 Dewatering Well: Shall mean a water well constructed for the purpose of lowering the ground water surface elevation.

2.4 District: The Middle Republican Natural Resources District.

2.5 Flow Meter: A device, approved by the district, to measure the quantity of ground water pumped, withdrawn, or taken from a water well.

2.6 Ground Water: Ground water shall mean that water which occurs in or moves, seeps, filters, or percolates through the ground under the surface of the land.

2.7 Illegal Water Well:

a. Any water well operated or constructed without or in violation of a permit required by the Act, or

b. Any water well not in compliance with the rules and regulations adopted and promulgated pursuant to the act, or

c. Any water well not properly registered in accordance with sections 46-602 to 46-6-4, or

d. Any water well not in compliance with any other applicable laws of the State of Nebraska or with rules and regulations adopted and promulgated pursuant to such laws, or

e. Any water well constructed or operated in violation of these or other rules and regulations of the district.

2.8 Inactive Status Well: Shall mean a water well that is in a good state of repair and for which the owner has provided evidence of intent for future use by maintaining the water well in a manner which meets the follow [sic] requirements:

a. The water well does not allow impairment of the water quality in the water well or of the ground water encountered by the water well,

b. The top of the water well or water well casing has a water-tight welded or threaded cover or some other water-tight means to prevent its removal without the use of equipment or tools to prevent unauthorized access, to prevent a safety hazard to humans and animals, and to prevent illegal disposal of wastes or contaminants into the water well,

c. The water well is marked so as to be easily visible and identified as a water well and the area surrounding the water well is kept clear of brush, debris, and waste material and status change is filed with the Nebraska Department of Natural Resources.

2.9 Late Permit: Shall mean a permit applied for after construction has commenced on a water well.

2.10 Livestock Operation Well: A regulated water well providing for the watering of animals in a livestock

operation or confined livestock operation as defined in Chapter 1 of Title 130, NDEQ, and requiring a permit from NDEQ to operate.

2.11 Livestock Well: A water well providing for the watering of:

a. Livestock, poultry, farm and domestic animals used in operating a farm, or

b. Domestic livestock as related to normal farm and ranch operations, or

c. Range livestock or stock use on a farm or ranch

2.12 Operator: The person who controls the day to day operation of the water well.

2.13 Permit: Shall mean a document that must be obtained from the district in accordance with Rule 6 before construction of a water well may be commenced in the management area.

2.14 Person: A natural person, a partnership, a limited liability company, an association, a corporation, a municipality, an irrigation district, an agency or a political subdivision of the state, or a department, an agency, or a bureau of the United States of America.

2.15 Regulated Well: A water well designed and constructed to pump more than fifty (50) gallons per minute. A series of water wells, with a combined discharge of more than fifty (50) gallons per minute, of which the water is commingled, combined, clustered or joined as a single unit for a single purpose shall be considered as one regulated well.

2.16 Replacement Well: A water well which:

a. Replaces a previously abandoned (decommissioned) water well within three (3) years of the last operation of the abandoned (decommissioned) water well or replaces a water well that will not be used after construction of the new water well and the original water well will be decommissioned within one (1) year of construction of the new water well and,

b. Is constructed to provide water to the same tract of land served by the water well being replaced.

2.17 Test Hole: Shall mean a hole designed solely for the purpose of obtaining information on hydrogeologic conditions.

2.18 Unregulated Well: A water well designed and constructed to pump fifty (50) gpm or less and is not commingled, combined, clustered or joined with other water wells.

2.19 Unused/Seldom Used Well: A water well that has not been placed in inactive status but is used less than one year in three.

2.20 Waiver: An agreement between a water well owner or operator and the district that will provide for relief from the enforcement of a rule or rules of the district.

2.21 Water Well: Any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for ground water, monitoring ground water, utilizing the geothermal properties of the ground, obtaining hydrogeologic information or extracting water from or injecting water into the underground water reservoir. Water wells shall not include any

excavation made for obtaining or prospecting for oil or natural gas or for inserting media to repressure oil or natural gas bearing formations regulated by the Nebraska Oil and Gas Conservation Commission.

Rule 3. Well Spacing –

3.1 No regulated well shall be constructed upon any land in this district within one thousand three hundred and twenty (1,320) feet of any registered regulated well, regardless of ownership except:

1. Any irrigation water well that replaces an irrigation water well drilled prior to September 20, 1957, and which is less that six hundred (600) feet from a registered irrigation well shall be drilled with [sic] fifty (50) feet of the old water well,

2. After July 1, 1998, a replacement well may be constructed at less than one thousand three hundred and twenty (1,320) feet from another registered water well, if it is constructed within one hundred (100) feet of the water well it replaces and was, when constructed, in compliance with all applicable laws, rules and regulations.

3.2 The well spacing required by ***Rule 3.1*** shall apply to an unregistered water well for a period of only thirty (30) days following completion of such water well.

Rule 4. Flow Meters –

4.1 Flow meters meeting the accuracy specifications established in ***Rule 4.3*** shall be installed on all regulated wells in accordance with the schedule established in ***Rule 4.2.***

4.2 Placement schedule:

For regulated wells in the alluvial valley of the Republican River Basin, as identified by the Nebraska's Department of Natural Resources, flow meters shall be installed by December 31st of the year specified.

4.2.1 1998 – Alluvial wells in sections 1 through 12

1999 – Alluvial wells in sections 13 through 23

2000 Alluvial wells in sections 24 through 36

For regulated wells, other than those in ***Rule 4.2-1,*** flow meters shall be installed by December 31st of the year specified.

4.2.2 2001 – All regulated wells in the NE quarter of the section

2002 – All regulated wells in the SE quarter of the section

2003 – All regulated wells in the SW quarter of the section

2004 – All regulated wells in the NW quarter of the section

For all new or replacement regulated wells constructed after July 1, 1999, flow meters shall be installed prior to use of the well.

For unused/seldom used wells or wells with a pumping capacity of less than two hundred and fifty (250) gallons per minute a measuring device or method approved by the district with an accuracy of plus or minus 5% of the actual water flow may be used.

For inactive status wells a flow meter shall be installed prior to placing the well into active status.

4.3 All meters shall be tested for accuracy using recognized industry testing methods and certified by the manufacturer according to those standards. At any rate of flow with the normal flow limits, the meter, except as noted in ***Rule 4.2,*** shall register not less than 98 percent nor more than 102 percent of the water actually passing through the meter. All meters shall have a register or totalizer and shall read in U.S. gallons, acre feet or acre inches.

4.4 Installation – The operator shall, on forms provided by the district, report the location, by legal description and certify the proper installation of flow meters. The district may, at a time of its own choosing, verify the location and proper installation of flow meters. The proper installation of a meter is such that it meets manufacturers specifications and/or more restrictive specifications developed by the district.

4.5 Service – It is the responsibility of the operator to service and maintain the flow meter according to either the manufacturers standards or standards developed by the district.

Rule 5. Reports –

5.1 Beginning with the year after meter installation as required by ***Rule 4*** all operators of regulated irrigation wells shall report on forms provided by the district by November 15 each year, measurements that show or allow the district to determine the total water withdrawn from that well since the last report and the acres irrigated by that well during the preceding irrigation season.

5.2 Each operator of a regulated well, other than an irrigation well, shall report, on forms provided by the district, by January 15 each year, the total water withdrawn from that well during the preceding calendar year.

Rule 6. Well Permit –

6.1 Except as provided to ***Rule 6.2*** any person who intends to construct a water well on land in the management area which he or she owns or controls shall, before commencing construction, apply with the district for a permit on a form provided by the district.

6.2 Exceptions – No permit shall be required for:

1. Test wells,

2. Dewatering wells with an intended use of ninety (90) days or less,

3. A single water well designed and constructed to pump fifty (50) gallons per minute or less.

6.3 A permit is required for a water well designed and constructed to pump fifty (50) gallons per minute or less if such water is commingled, combined, clustered, or joined with any other water well or wells or other water source, other than a water source used to water range livestock. Such wells shall be considered one water well and the combined capacity shall be used as the rated capacity.

6.4 A person shall apply for a permit before he or she modifies a water well, for which a permit was not required when the well was constructed, into one for which a permit is now required.

6.5 The application shall be accompanied by a $17.50 filing fee payable to the district and shall contain:

1. The name and post office address of the well owner,

2. The nature of the proposed use,

3. The intended location of the proposed water well or other means of obtaining ground water,

4. The intended size, type, and description of the proposed water well and estimated depth,

5. The estimated capacity in gallons,

6. The acreage and location by legal description of the intended use of the well water,

7. A description of the proposed use of the well water,

8. The registration number of the well being replaced, if applicable,

9. Such other information as the district may require.

6.6 Any person who has failed or in the future fails to obtain a permit before construction is started shall make an application for a late permit on forms provided by the district.

6.7 The application for a late permit shall be accompanied by a two hundred and fifty ($250) fee payable to the district and shall contain the same information required in ***Rule 6.5***.

6.8 The application for a permit shall be denied if:

1. The location or operation of the proposed water well or other work would conflict with any regulations or controls adopted by the district,

2. The proposed use would not be a beneficial use,

3. In the case of a late permit only, that the applicant did not act in good faith in failing to obtain a timely permit.

6.9 The issuance, by the district, of a permit or the registration of a water well shall not vest in any person the right to violate any district rule, regulation, control properly adopted after such date.

6.10 The applicant shall commence construction as soon as possible after the date of approval and shall complete construction and equip the water well prior to the date specified in the conditions of approval, which shall not be more than one year from the date of approval.

Rules and Regulations For the

Temporary Suspension of the Drilling of New Wells

Adopted by the Board of Directors of the Middle Republican Natural Resources District on June 11, 2002 following a Public Hearing on June 11, 2002.

AUTHORITY

The authority for these rules is contained in Chapter 46, Reissue Revised Statutes of Nebraska, Article 6, specifically sections 46-656.01 to 46-656.67 known as the Nebraska Ground Water Management and Protection Act.

GENERAL PROVISIONS

In July of 1996, the Middle Republican NRD requested that the Department of Water Resources conduct studies and hold a hearing on the preparation of a joint action plan for the integrated management of hydrologically connected ground water and surface water in the NRD.

In July of 1998, the Middle Republican NRD adopted rules and regulations for a Ground Water Management Area. The current version of the groundwater management area rules and regulations were adopted in July 2000.

In June of 1999, the Middle Republican NRD requested that the process initiated in July of 1996, be suspended.

In May of 2002, the Middle Republican NRD requested that the Department of Natural Resources (formerly the Department of Water Resources) resume the process begun in 1996.

Rule 1. Area Designation and Boundaries: The area subject to these rules is the entire geographic area that coincides with the boundaries of the Middle Republican Natural Resources District. The stratigraphic boundary of the area is from the land surface to the base of the underlying sand and gravel layers that contain the water bearing material. The base of the sand and gravel layers rest on impervious layers of Niobrara Chalk, Pierre Shale or formations from the White River Group.

Rule 2. Definitions:

2.1 Ground Water Management Area: Shall mean the area so designated by the Middle Republican

Natural Resources District pursuant to section 46-656.20, Revised Statutes of Nebraska, on July 1, 1998.

2.2 Permit: Shall mean a document that must be obtained from the district in accordance with Sections 46-656.29 through 46-656.31, Revised Statutes of Nebraska, and Rule 6 of the Rules and Regulations for the Ground Water Management Area.

2.3 Well or Water Well: Shall mean a water well as defined in Section 46-601.01, Revised Statutes of Nebraska and that is designed and constructed to pump more than fifty (50) gallons per minute. A series of water wells, with a combined discharge of more than fifty (50) gallons per minute, of which the water is commingled, combined, clustered or joined as a single unit for a single purpose shall be considered as one well.

2.4 Test Hole: Shall mean a hole designed solely for the purpose of obtaining information on hydrogeologic conditions.

2.5 Dewatering Well: shall mean a water well constructed for the purpose of temporarily lowering the ground water surface elevation.

2.6 Replacement Well: a water well which (a) replaces a previously abandoned water well within three years of the last operation of the abandoned water well or replaces a water well that will not be used after construction of the new water well and the original water well will be decommissioned within one year of construction of the new water well; (b) if for irrigation, is constructed to provide water to the same tract of land served by the water well being replaced. A replacement well as defined in section 46-602, or

as further defined in district rules and regulations, is subject to the same provisions as the water well it replaces.

Rule 3. Temporary Suspension of the Drilling of New Wells:

3.1 Effective June 12, 2002 and except as provided in ***Rule 3.2***, there is a temporary suspension in the drilling of new wells and a temporary suspension in the issuance of permits to construct new wells.

3.2 Wells not subject to ***Rule 3.1*** are:

3.2.1. Test holes,

3.2.2 Dewatering wells with an intended use of less than ninety days,

3.2.3 Water wells designed and constructed to pump fifty gallons per minute or less,

3.2.4 Water wells to be used as replacement wells.

3.3 Wells with existing permits may be constructed if, on or before June 11, 2002, the construction of the well has begun. All other permits will be subject to this suspension.

3.4 This temporary suspension of drilling shall remain in effect until June 1, 2005 unless rescinded by the Middle Republican NRD.

3.5 This temporary suspension can be extended by amendment of these rules and regulations beyond June 1, 2005 on an annual basis until June 1, 2007.

Rule 4. Variances:

4.1 The board may grant variances from the strict application of these rules and regulations if it determines that construction of a new well is necessary to alleviate an emergency situation involving the provision of water for human consumption or upon other good cause shown.

4.2 An expedited variance may by granted by the manager or his designated representative for the purpose of approving a well permit for:

4.2.1 Contamination/Remediation: Shall mean a water well, constructed to recovery well standards, for the purpose of withdrawal or treatment of contaminated water, or for the introduction or removal of air, water or chemicals. The variance request and application for a Permit to Construct a Water Well shall include written approval of the state agency with supervisory responsibility for the planned project.

4.2.2 Monitoring/Observation: Shall mean a water well, constructed to the appropriate well standards, for the purpose of withdrawal of water or the observation of water levels during aquifer testing, collection of water quality samples and providing hydrogeology information. A monitoring/observation well shall not have a permanent pump installation.

The variance request and an application for a Permit to Construct a Water Well shall include the planned disposition of the monitoring/observation well after its intended use is completed.

4.3 All requests for a variance, other than those in ***Rule 4.2,*** shall be made on forms provided by the district and will be acted upon after a hearing before the district.

Rule 5. Violations:

These rules and regulations shall be enforced by the district through the use of cease and desist orders issued in accordance with the "Rules and Regulations for the Enforcement of the Nebraska Ground Water Management and Protection Act, adopted March 27, 2000, and Section II, Subsection E, ***Rule 4*** of the "General Policy Statement" Any violation of a cease and desist order issued by the district shall be a Class IV misdemeanor.

APPENDIX E

LOWER REPUBLICAN NATURAL RESOURCE DISTRICT

Lower Republican Natural Resources District

Rules and Regulations

Temporary Suspension of the Drilling of New Water Wells

and

Water Use Measuring Devices for Water Wells

adopted
December 2, 2002

Section 1. Authority

These rules and regulations are adopted pursuant to the authority granted by the Nebraska Unicameral in the Nebraska Ground Water Management and Protection Act, Neb. Rev. Stat. § 46-656.01-46-656.67.

Section 2. Definitions

Alluvial Well — Shall mean a water well which is located in the district and in the alluvial aquifer of the Republican River Basin as determined and delineated on a map prepared by the Department of Natural Resources.

Board — Shall mean the duly constituted and elected Board of Directors of the Lower Republican Natural Resources District acting in its official capacity.

Category 1 Well	Shall mean a well with a pumping capacity of more than 250 gpm and used for withdrawal of water, on average, in at least one year out of three.
Category 2 Well	Shall mean a well with a pumping capacity of 250 gpm or less or a capacity active eligible well used for withdrawal of water, on average, in at least one year out of three.
District	Shall mean the Lower Republican Natural Resources District.
Flow Meter	Shall mean a device of a type or design approved by the Board, which when properly installed, operated, and maintained according to the district's specifications, measures and totalizes the quantity of groundwater pumped, withdrawn, or taken from a well.
Groundwater	Shall mean water that occurs or moves, seeps, filters, or percolates through the ground under the surface of the land.
Groundwater User	Shall mean any person (owner, agent, tenant, etc.) who, at any time after the effective date of these regulations, utilizes a water well to extract or withdraw groundwater for his or her own use or for other persons.
Non-alluvial Well	Shall mean a water well which is located in the district but not located within the alluvial aquifer of the

	Republican River Basin as determined and delineated on a map prepared by the Nebraska Department of Natural Resources.
Water Well or Well	Shall mean a water well as defined in Neb. Rev. Stat. § 46-601.01 that is used for other than domestic purposes and that is designed and constructed to pump more than fifty (50) gallons per minute. A series of water wells, with a combined discharge of more than fifty (50) gallons per minute, of which the water is commingled, combined, clustered or joined, as a single unit for a single purpose shall be considered one well. For purposes of these rules, the term "water well" or "well" does not include any water well classified as an "inactive status water well" in accordance with Neb. Rev. Stat., § 46-1207.02.
Test hole	Shall mean a hole designed solely for the purpose of obtaining information on hydrogeologic conditions.
Dewatering Well	Shall mean a water well constructed for the purpose of temporarily lowering the groundwater surface elevation.
Replacement Well	Shall mean a water well which (a) replaces a previously abandoned water well or replaces a water well that will not be used after construction of the new water well and the original water well will be decommissioned

within one year of construction of the new water well; and (b) if for irrigation, is constructed to provide water to the same tract of land served by the water well being replaced. A replacement well as defined in § 46-602, or as further defined in district rules and regulations, is subject to the same provisions as the water well it replaces.

Section 3.0. Meter Program Responsibilities

Each groundwater user subject to these rules will be responsible for: a) the purchase and installation of a flow meter or other measuring device as permitted by these rules; b) maintenance of the flow meter or other permitted measuring device; c) the repair or replacement of a disabled, inoperable or inaccurate flow meter or other permitted measuring device; and d) reading the flow meter or other permitted measuring device and reporting water use to the district as required by these rules.

The District will be responsible for: a) inspecting flow meter and other permitted measuring device installation; and b) spot checking flow meter readings and flow meters and other permitted measuring devices for accuracy.

Section 3.1. Meter Program Completion Schedule

For each Category 1 alluvial well and for each Category 2 alluvial well, except as otherwise required, a flow meter shall be installed and be operational by the date specified in the following schedule:

April 1, 1999	Wells located in government survey sections 1 through 12
April 1, 2000	Wells located in government survey sections 13 through 24
January 1, 2001	Wells located in government survey sections 25 through 36

For each non-alluvial well constructed on or before the effective date of these rules, a flow meter shall be installed and be operational by the date specified in the following schedule:

May 1, 2003 – Wells located in government survey sections 1 through 12
April 1, 2004 – Wells located in government survey sections 13 through 24
April 1, 2005 – Wells located in government survey sections 25 through 36

For each water well constructed after the effective date of these rules, a flow meter shall be installed and be operational by the applicable date specified in the schedule above or by the date of first use of the well, whichever date is later.

All alluvial water wells subject to an "Agreement to Use Alternative Metering Device for Active Irrigation Well Not Currently In Use," shall remain subject to the terms and conditions of such agreements.

Section 3.2. Meter Specifications, Sealing, Installation and Removal

All flow meters shall be tested for accuracy using recognized industry testing methods and certified by the manufacturer according to those standards. At any rate of flow within the normal flow limits, a newly installed flow

meter shall register within plus or minus 2% of the actual water flow. All flow meters shall have a register reading in gallons per minute and a totalizer with sufficient capability to record at least the quantity of water pumped during one whole year. The totalizing dial face shall clearly indicate the units measured.

Within 30 days of installation of the flow meter, the operator shall report the water well and flow meter location by legal description and by well registration number, if known. The District may, at any time, verify the location and proper installation of flow meters.

All existing and new flow water meters must be readable and have the capacity to be sealed. The district staff may seal any and all flow meters on wells subject to those rules. No seal shall be removed without district approval.

The flow meter shall be installed in accordance with the manufacturer's instructions and in such a manner to assure full pipe flow at all times while groundwater is being pumped. Full pipe flow may be obtained by using butterfly valves or by raising the pipe after the meter to a point above the level of the flow meter.

The flow meter shall be placed in the line with at least 5 pipe diameters of straight pipe without valves, elbows, or other obstructions upstream and at least 1 pipe diameter of straight pipe without valves, elbows or other obstructions downstream. Where manufacturer's instructions are more stringent they shall govern. If these conditions cannot be obtained, straightening vanes shall be installed in the pipe ahead of the flow meter according to the manufacturer's instructions.

Flow meters must be kept clear of debris, vegetative growth or other material which would impede operation. Where flow meters are removed for servicing or replacement, records of meter reading shall be kept. Flow meters should be stored in such a manner to prevent damages by freezing and rodents.

It shall be unlawful under these rules for any person to willfully injure, alter, remove, reset, adjust, manipulate, obstruct, or in any manner interfere with or tamper with any flow meter on a well subject to these rules for the purpose of or with the intent to produce an incorrect, inaccurate or misleading measurement, without district consent, or to cause, procure, or direct any other person to do so.

Section 3.3. Operational Accuracy

To be considered acceptable for purposes of these rules, and in addition to meter and installation specifications elsewhere in these rules, each flow meter or other permitted measuring device must continue to measure water flow within a range of plus or minus 5% of the actual water flow from the well. If the groundwater user or the district determines that such accuracy is no longer within the acceptable range, the water flow meter or other permitted measuring device shall be repaired or replaced or other necessary adjustments shall be made in the system to assure that accurate water use information can be obtained. Unless an extension is granted by the Board for good cause shown, such replacement, repair, or adjustment shall be made within 30 days of such determination by the groundwater user or the district. In the

interim, any groundwater use shall be measured by a method approved by the board.

Section 3.4. District Flow Meter Inspection/ Flow Rate Evaluations

The district may at any time conduct an inspection of the flow meter and installation or perform a flow rate evaluation using the district's calibrated flow meter, ultrasonic flow meter, or other flow measuring device approved for use by the board. Such inspections and evaluations shall be randomly conducted by the district. The district's goal shall be to annually check 25% of the flow meters and other permitted measuring devices subject to these rules. The groundwater user shall be notified in advance of the district's intention to conduct such inspection or evaluation and such user may be present if he or she so desires at such inspection or evaluation. The results of any such inspection or evaluation shall be provided to the groundwater user within 10 days if he or she is not present when the inspection or evaluation is conducted.

If the district determines after a flow meter and installation inspection that the flow meter or its installation do not meet the specifications in these rules, the groundwater user shall take the necessary corrective steps within 30 days. In the interim, any groundwater use shall be measured by a method approved by the board.

If a flow rate evaluation by the district indicates that the flow meter or other permitted measuring device is no longer accurate within a range of plus or minus 5% of the actual water flow, the groundwater user may arrange for an independent evaluation to be conducted with a

calibrated flow meter, ultrasonic flow meter, or other measuring device acceptable to the board. Such independent evaluation must be made within the time permitted by Section 6 of these rules for repair or replacement of inaccurate meters or other permitted measuring devices. If such independent evaluation is conducted in accordance with standards established by the board, and if it indicates that the flow meter or other permitted measuring device is measuring water flow within the acceptable range, the board will accept such independent evaluation and authorize the continued use of the water flow meter or other permitted measuring device without repair, adjustment, or replacement.

Section 3.5. Notice of Replacement

The groundwater user of a water well which is required to be metered will notify the District within 10 days of the installation [sic] a replacement meter.

Section 3.6. Accessibility

All meters must be accessible for inspection and may be inspected at any reasonable time by a District representative.

Section 3.7. Annual Meter Reporting

Each groundwater user shall report the water withdrawn each year from each well subject to these rules. For wells with flow meters, such reports shall provide the meter reading at the beginning of the calendar year or the date when the flow meter was installed, whichever date is

later, and the flow meter reading at the end of the calendar year. If a flow meter was changed, reset or otherwise altered during the year, the report shall include sufficient information for the district to determine the water used for that year. All such reports shall be on forms provided by the district. Unless (1) earlier reporting is required because of the use of cost share assistance or (2) the well is constructed after the applicable date in the schedule in Section 3.1 of these rules, all such reports shall be filed by the date specified below and by January 15 of each year thereafter.

For Alluvial Wells Except Category 2 Alluvial Wells For Which An Alternative Water Use-Measuring Device Was Approved by the Board Under Previous NRD Rules:

January 15, 2000	Wells located in government survey sections 1 through 12
January 15, 2001	Wells located in government survey sections 13 through 24
January 15, 2002	Wells located in government survey sections 25 through 36

For Non-Alluvial Wells and for Category 2 Alluvial Wells For Which An Alternative Water Use-Measuring Device Was Approved by the Board Under Previous NRD Rules:

January 15, 2004	Wells located in government survey sections 1 through 12
January 15, 2005	Wells located in government survey sections 13 through 24
January 15, 2006	Wells located in government survey sections 25 through 36

For a well constructed after the applicable date in the schedule in Section 3.1 of these rules, the water use report

is due by January 15 of the first year following the first use of the well and by January 15 of each year thereafter.

A groundwater user who fails to report water use as required by this section or who falsely reports such information shall be subject to enforcement actions authorized by statute and by these rules and regulations.

Section 4. Variances For Well Meters

The Board may grant variances from the strict application of these rules upon (1) a showing of good and sufficient cause; (2) a determination that failure to grant the variance would result in exceptional hardship to the applicant; and (3) a determination that the granting of the variance will not result in a conflict with other applicable laws, rules, or regulations.

Section 5. Temporary Suspension of Drilling New Wells

In July of 1996, the Board requested the Nebraska Department of Water Resources to conduct studies and hold a hearing on the preparation of a joint action plan for the integrated management of hydrologically connected groundwater and surface water. In June of 1999, the Board requested the Nebraska Department of Water Resources to suspend the studies and process begun in 1996. In October of 2002, the Board requested the Nebraska Department of Natural Resources (the successor agency to the Nebraska Department of Water Resources) to resume the studies and process begun in 1996.

Effective December 9, 2002, there is a temporary suspension of the drilling of new wells within the entire Lower Republican NRD, except for those areas lying east

of a line proceeding north from the Nebraska-Kansas state line and following the western edge of Webster County, Township 1, Range 9, Sections 34, 27, 22, 15, 10, 3, through Webster County, Township 2, Range 9, Sections 34, 27, 22; then proceeding west along the southern edge of Webster County, Township 2, Range 9, Sections 16, 17, 18; then proceeding north following the western edge of Webster County, Township 2, Range 9, Sections 18, 7, 6, through Webster County, Township 3, Range 9, Sections 31, 30, 19, 18, 7, 6 to its intersection with the northern boundary of Webster County.

Wells not subject to the temporary suspension of drilling shall include (1) test holes; (2) Dewatering wells with an intended use of less than ninety days; (3) Water wells designed and constructed to pump fifty gpm or less; and (4) Water wells to be used as replacement wells. The temporary suspension of drilling shall remain in effect until November 30, 2005 unless rescinded.

Section 6. Variances for Drilling New Wells

The Board may grant variances from the strict application of these rules and regulations if it determines that construction of a new well is necessary to alleviate an emergency situation involving the provision of water for human consumption or upon other good cause shown. All requests for variances shall be made on forms provided by the district and will be acted upon after a public hearing before the Board.

Section 7. Enforcement of Rules

These rules and regulations may be enforced through issuance of cease and desist orders by the Board.

Violations of a cease and desist orders [sic] issued by a district are also classified as Class IV misdemeanors by § 46-656.10.

Section 8. Effective Date

These rules and regulations shall be effective commencing on December 9, 2002 and shall remain in full force and effective until repealed, amended, or superseded.

APPENDIX F

Nebraska Calculation of Historic Consumptive Use

The natural resources districts have adequate authority in current law to adopt and enforce historic consumptive use limitations for replacement wells and for wells receiving transfers of rights to use. A specific Natural Resource District's authority for imposing those limitations depends upon where that natural resources district is in its regulatory process. As long as the temporary suspension authorized by Section 46-656.28(16), R.R.S. 1998, as amended by Sec. 4 of LB 458, 97th Nebraska Legislature, Second Session (2002) remains in effect in the Lower Republican Natural Resources District or the Middle Republican Natural Resources District, the authority for such limitations is through the District's ability to define "replacement wells" The authority of the district to define such wells for purposes of the temporary moratorium can be utilized to impose the historic consumptive use limitation on both replacement wells and transfers of rights to use. A definition similar to the following will be proposed for adoption by the two districts operating under the temporary suspension:

> Replacement well shall mean a water well which (a) replaces a previously abandoned water well within one year of the last operation of the abandoned water well or replaces a water well that will not be used after construction of the new water well and the original water well will be decommissioned within one year of construction of the new water well; and (b) would not be used in such a way as to result in the consumption of more water than was historically consumed by the water well being replaced.

> For purposes of comparing the consumptive use of a proposed new water well for irrigation with the historic consumptive use of an irrigation water well to be replaced, the new water well shall be considered a replacement water well only if the number of acres to be irrigated by that new water well does not exceed the number of acres historically irrigated by the water well being replaced. If either the water well being replaced is or was used for any purpose other than irrigation or the proposed replacement water well is to be used for any purpose other than irrigation, the person proposing to construct the proposed replacement well shall provide the district with such information as the district determines necessary to compare the historic consumptive use of the water well being replaced with the anticipated consumptive use of the proposed replacement water well. If construction of the proposed replacement water well is approved by the district, it may impose such conditions on the construction and/or operation of that well as it deems necessary to prevent any increase in consumptive use because of the construction and/or operation of the replacement water well.

The districts which have a permanent moratorium may limit replacement and transfer wells pursuant to subsection (k) of Section 46-656.25, R.S.Supp., 2001. That subsection authorizes not only a moratorium but also allows a district to "condition the issuance of additional permits on compliance with other rules and regulations to achieve the purpose or purposes for which the management area was designated." Subsequent permits may be conditioned upon the retirement of an existing well and on the further condition that the replacement or transfer well's consumptive use not exceed the consumptive use of the well being replaced. That could be accomplished by creating an

exception to the moratorium and by combining that exception with a definition like the one proposed above.

Finally, to implement the requirement that transfers not be allowed from water uses that deplete streamflows below Swanson Reservoir to water uses that would deplete streamflows above Swanson Reservoir, the Middle Republican Natural Resources District will need to include additional provisions in its rule or rules to prevent such "downstream" to "upstream" replacements and/or transfers.

No. 126, Original

In The

Supreme Court of the United States

STATE OF KANSAS,

Plaintiff,

v.

STATE OF NEBRASKA

and

STATE OF COLORADO,

Defendants.

BEFORE THE HONORABLE VINCENT L. MCKUSICK
SPECIAL MASTER

FINAL SETTLEMENT STIPULATION
VOLUME 4 OF 5

December 15, 2002

COCKLE LAW BRIEF PRINTING CO. (800) 225-6964
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APPENDIX G

Kansas Laws, Rules and Regulations re: Prohibition on Well Construction

Kansas Water Appropriation Act April 3, 2002

K.S.A. 82a-701. Definitions. When used in this act, unless the context indicates otherwise, the following words shall have the following meanings:

(a) "Person" shall mean and include a natural person, a partnership, an organization, a corporation, a municipality and any agency of the state or federal government.

(b) "Chief engineer" means the chief engineer of the division of water resources of the Kansas state board of agriculture.

(c) "Domestic uses" means the use of water by any person or by a family unit or household for household purposes, or for the watering of livestock, poultry, farm and domestic animals used in operating a farm, and for the irrigation of lands not exceeding a total of two (2) acres in area for the growing of gardens, orchards and lawns.

(d) "Vested right" means the right of a person under a common law or statutory claim to continue the use of water having actually been applied to any beneficial use, including domestic use, on or before June 28, 1945, to the extent of the maximum quantity and rate of diversion for the beneficial use made thereof, and shall include the right to take and use water for beneficial purposes where a person is engaged in the construction of works for the actual application of water to a beneficial use on June 28, 1945, provided such works shall be completed and water is actually applied for such use within a reasonable time

thereafter by such person, his heirs, successors or assigns. Such a right does not include, however, those common law claims under which a person has not applied water to any beneficial use within the periods of time set out in this subsection.

(e) "Appropriator" means and includes a person who has an appropriation right that has been perfected in conformity with article 7 of chapter 82a of the Kansas Statutes Annotated and acts amendatory thereof and supplemental thereto.

(f) "Appropriation right" is a right, acquired under the provisions of article 7 of chapter 82a of the Kansas Statutes Annotated and acts amendatory thereof and supplemental thereto, to divert from a definite water supply a specific quantity of water at a specific rate of diversion, provided such water is available in excess of the requirements of all vested rights that relate to such supply and all appropriation rights of earlier date that relate to such supply, and to apply such water to a specific beneficial use or uses in preference to all appropriations right of later date.

(g) "Water right" means any vested right or appropriation right under which a person may lawfully divert and use water. It is a real property right appurtenant to and severable from the land on or in connection with which the water is used and such water right passes as an appurtenance with a conveyance of the land by deed, lease, mortgage, will, or other voluntary disposal, or by inheritance. (History: L. 1945; amended 1957; amended 1977; amended 1978.)

K.S.A. 82a-702. Dedication of use of water. All water within the state of Kansas is hereby dedicated to the use

of the people of the state, subject to the control and regulation of the state in the manner herein prescribed. (History: L. 1945.)

K.S.A. 82a-703. Water may be appropriated subject to vested rights. Except as provided in K.S.A. 82a-703a and subject to vested rights, all waters within the state may be appropriated for beneficial use as herein provided. Nothing contained in this act shall impair the vested right of any person except for nonuse. (History: L. 1945; amended 1980.)

K.S.A. 82a-703a. Minimum streamflows; duties of chief engineer. Whenever the legislature enacts legislation establishing a minimum desirable streamflow for any watercourse in this state, the chief engineer shall withhold from appropriation that amount of water deemed necessary to establish and maintain for the identified watercourse the desired minimum streamflow. (History: L. 1980; amended 1984; amended 1985.)

K.S.A. 82a-703b. Minimum streamflows; condition of appropriation right. (a) In addition to any other limitation or condition prescribed by law or rule and regulation of the chief engineer, it shall be an express condition of each and every appropriation right, except for use of water for domestic purposes, applied for after April 12, 1984, that such right shall be subject to any minimum desirable streamflow requirements identified and established pursuant to law on or before July 1, 1990, for the source of water supply to which such right applies.

(b) All vested rights, water appropriation rights and applications for permits to appropriate water having a priority date on or before April 12, 1984, shall not be

subject to any minimum desirable streamflow requirements established pursuant to law. (History: L. 1984; amended 1987.)

K.S.A. 82a-703c. Minimum streamflows established. In accordance with the provisions of K.S.A. 82a-703a, and amendments thereto, the legislature hereby establishes the following minimum desirable streamflows:

Table—MINIMUM DESIRABLE STREAMFLOWS (cfs)

Watercourse	Month											
	J	F	M	A(a)	M(a)	J(a)	J	A	S	O	N	D
Marais des Cygnes												
Ottawa	15	15	15	15(40)	20(50)	25(50)	25	25	20	15	15	15
LaCygne	20	20	20	20(50)	20(150)	25(150)	25	25	20	20	20	20
Neosho												
Americus	5	5	5	5(20)	5(30)	5(30)	5	5	5	5	5	5
Iola	40	40	40	40(60)	40(200)	40(200)	40	40	40	40	40	40
Parsons	50	50	50	50(100)	50(300)	50(300)	50	50	50	50	50	50
Cottonwood												
Florence	10	10	10	10(30)	10(60)	10(60)	10	10	10	10	10	10
Plymouth	20	20	20	20(60)	20(150)	20(150)	20	20	20	20	20	20
Little Arkansas												
Alta Mills	8	8	8	8	8	8	8	8	8	8	8	8
Valley Center	20	20	20	20	20	20	20	20	20	20	20	20
Arkansas River												
Kinsley (b)	2	2	3	3	5	5	3	1	1	1	2	2
Great Bend (b)	3	3	3	3	10	10	5	3	2	2	2	3
Hutchinson	80	80	100	100	100	100	80	80	60	60	60	80
Rattlesnake Creek												
Macksville (b)	5	5	10	10	10	10	5	1	1	1	5	5
Zenith	15	15	15	15	15	15	5	3	3	3	10	15
North Fork Ninnescah Above												
Cheney	40	50	50	50	40	30	10	5	5	10	40	40
South Fork Ninnescah												
Pratt	10	10	10	8	8	8	5	5	5	5	10	10
Murdock	80	90	90	90	90	50	30	30	30	50	80	80
Ninnescah												
Peck	100	100	100	100	100	70	30	30	30	50	100	100
Saline												
Russell	5	5	15	15	15	12	2	2	2	5	5	5
Smoky Hill												
Ellsworth(c)	20	20	25	30	35	45	35	15	15	15	20	20

Watercourse	Month											
	J	F	M	A(a)	M(a)	J(a)	J	A	S	O	N	D
Medicine Lodge												
Kiowa	50	55	60	60	40	30	6	1	1	4	40	50
Chikaskia												
Corbin	30	45	50	45	40	30	16	5	5	8	30	30
Big Blue												
Marysville	100	100	125	150	150(d)	150(d)	80	90	65	80	80	80
Little Blue												
Barnes	100	100	125	150	150(d)	150(d)	75	80	60	80	80	80
Republican												
Concordia (e)	100	125	150	150	150	150	150	150	80	65	80	100
Clay Center	125	150	200	250	250	250	200	200	100	90	100	125
Mill Creek												
Paxico	8	8	8	25	30	35	10	5	5	2	5	8
Delaware												
Muscotah	10	10	20	20	20	20	5	3	3	2	10	10
Walnut River												
Winfield	30	35	40	65	100	100	30	25	20	20	20	30
Whitewater River												
Towanda	10	15	15	20	25	25	10	5	5	5	6	10
Spring River												
Baxter Springs (f)	175	200	250	300	450	350	200	160	120	120	150	175
Chapman Creek												
Chapman	10	15	15	15	15	15	10	10	10	10	10	10
Solomon River												
Niles	40	50	60	60	90	90	50	50	40	40	40	40

(a) Spawning flows to be managed if reservoirs in flood pool; otherwise use lower flows.
(b) Subject to subsequent assessment of lagged effects of extensive groundwater appropriations in regional aquifer.
(c) Subject to subsequent assessment of lagged effects of upstream depletions.
(d) Subject to the stateline flows contained in the Blue River Compact.
(e) Subject to subsequent assessment of Harlan County reservoir operations, development of compact stateline flows and lagged effects of upstream depletions.
(f) Flows measured at Quapah, Oklahoma; may need review if a new station is established.

(History: L. 1985; amended 1987; amended 1989.)

K.S.A. 82a-704. Repealed. (History: L. 1945; amended 1957; repealed 1978.)

K.S.A. 82a-704a. Determination of vested rights; procedure; duties of chief engineer. (a) All persons claiming a vested right for the beneficial use of water, other than for domestic use, which has not been determined pursuant to K.S.A. 82a-704, shall file by July 1, 1980, with the chief engineer a verified claim for such vested right. The chief engineer shall not accept any such claim after said date. Such verified claim shall be upon forms provided therefor by the chief engineer and shall set forth:

(1) The name and post-office address of the claimant;

(2) the source to which the claim relates;

(3) the amount of water claimed;

(4) the location of the works for the diversion and use of the claimed water;

(5) the dates of the beneficial use made; and

(6) any additional information the chief engineer may require.

(b) Upon receipt of a verified claim for a vested right for the beneficial use of water, the chief engineer shall investigate the same and shall conduct a hearing thereon. Such hearing shall be noticed by restricted mail to the claimant and to other known interested persons within a five (5) mile radius of the point of diversion of such claimed vested right at least thirty (30) days prior to the date set for the hearing. Notice shall also be given by publication in a

newspaper of general circulation in the county wherein the vested right is claimed to exist at least once each week for three (3) consecutive weeks prior to the hearing. Such published notice shall contain the date and place of hearing and a general description of the area affected by the claimed vested right and shall be directed to all persons interested and concerned. At the hearing, the chief engineer shall take evidence of all persons interested and concerned and the same shall be considered in the determination of the existence of a vested right for beneficial use of water. As soon as possible thereafter the chief engineer shall make an order determining the existence or nonexistence of the claimed vested right and shall notify the claimant and contestants thereof as to the contents of such order. Service of such notice shall be deemed complete upon depositing such notice in the post office as restricted mail addressed to the vested right claimant and any contestant thereto whose address is known to the chief engineer and upon the publication of an abstract of such order once each week for three (3) consecutive weeks in a newspaper of general circulation in the county wherein the vested right is claimed to exist.

(c) Any claimant of a vested right or person contesting the same who considers himself or herself aggrieved by the order of determination of a vested right may appeal to the district court in the manner prescribed by K.S.A. 82a-724.

(d) The order of determination of a vested right of the chief engineer shall be in full force and effect from the date of its entry in the records of his or her office unless and until its operation shall be stayed by an appeal therefrom by the claimant thereof or a contestant thereto in accordance with the provisions of K.S.A. 82a-724 except that no

such determination shall be deemed an adjudication of the relation between any vested right holders with respect to the operation or exercise of their vested rights.

(e) The chief engineer shall file a copy of any order of determination of the existence of a vested right with the register of deeds of the county wherein the land is located to which such vested right is appurtenant. The register of deeds shall record the same as other instruments affecting real estate.

(f) No vested right for the beneficial use of water, other than for domestic use, shall be deemed to exist from and after July 1, 1980, unless the same has been determined to exist pursuant to the provisions of this act or pursuant to the provisions of K.S.A. 82a-704. (History: L. 1978.)

K.S.A. 82a-704b. Same; notice. The chief engineer shall provide notice throughout the state of the provisions of this act by means assuring the widest dissemination thereof as practicable. (History: L. 1978.)

K.S.A. 82a-704c. Same; supplemental to Kansas water appropriation act. The provisions of K.S.A. 82a-704a shall be a part of and supplemental to the Kansas water appropriation act. (History: L. 1978.)

K.S.A. 82a-705. Acquisition of appropriation right to use water other than domestic; approval. No person shall have the power or authority to acquire an appropriation right to the use of water for other than domestic use without first obtaining the approval of the chief engineer, and no water rights of any kind may be acquired hereafter solely by adverse use, adverse possession, or by estoppel. (History: L. 1945; amended 1957.)

K.S.A. 82a-705a. Domestic use after June 28, 1945; information to chief engineer. The use of water for domestic purposes instituted subsequently to June 28, 1945, to the extent that it is beneficial, shall constitute an appropriation right. The chief engineer, however, may require any person using water for any purpose to furnish information with regard to such use thereof. (History: L. 1957.)

K.S.A. 82a-706. Duties of chief engineer as to beneficial use and rights of priority of appropriation. The chief engineer shall enforce and administer the laws of this state pertaining to the beneficial use of water and shall control, conserve, regulate, allot and aid in the distribution of the water resources of the state for the benefits and beneficial uses of all of its inhabitants in accordance with the rights of priority of appropriation. (History: L. 1945; amended 1957.)

K.S.A. 82a-706a. Rules, regulations and standards. The chief engineer shall adopt, amend, promulgate, and enforce such reasonable rules, regulations, and standards necessary for the discharge of his or her duties and for the achievement of the purposes of this act pertaining to the control, conservation, regulation, allotment, and distribution of the water resources of the state. (History: L. 1957; amended 1977.)

K.S.A. 82a-706b. Diversion of water prohibited, when; unlawful acts; enforcement by chief engineer. It shall be unlawful for any person to prevent, by diversion or otherwise, any waters of this state from moving to a person having a prior right to use the same, or for any person without an agreement with the state of Kansas to divert or take any water that has been released from storage under authority of the state of Kansas or that has been released from storage pursuant to an agreement between the state and federal government. Upon making a determination of an unlawful diversion the chief engineer or his or her authorized agents, shall direct that the headgates, valves, or other controlling works of any ditch, canal, conduit, pipe, well, or structure be opened, closed, adjusted, or regulated as may be necessary to secure water to the person having the prior right to its use, or to secure water for the purpose for which it was released from storage under authority of the state of Kansas or pursuant to an agreement between the state and federal government. The chief engineer, or his or her authorized agents, shall deliver a copy of such a directive to the persons involved either personally or by mail or by attaching a copy thereof to such headgates, valves, or other controlling works to which it applies and such directive shall be legal notice to all persons involved in the diversion and distribution of

the water of the ditch, canal, conduit, pipe, well, or structure. For the purpose of making investigations of diversions and delivering directives as provided herein and determining compliance therewith, the chief engineer or his or her authorized agents shall have the right of access and entry upon private property. (History: L. 1957; amended 1965.)

K.S.A. 82a-706c. Meters, gages and other measuring devices; waste and quality checks. The chief engineer shall have full authority to require any water user to install meters, gages, or other measuring devices, which devices he or she or his or her agents may read at any time, and to require any water user to report the reading of such meters, gages, or other measuring devices at reasonable intervals. He or she shall have full authority to make, and to require any water user to make, periodic water waste and water quality checks and to require the user making such checks to report the findings thereof. (History: L. 1957.)

K.S.A. 82a-706d. Duties of attorney general. Upon request of the chief engineer the attorney general shall bring suit in the name of the state of Kansas, in courts of competent jurisdiction to enjoin the unlawful appropriation, diversion, use of the waters of the state, and waste or loss thereof. (History: L. 1957.)

K.S.A. 82a-706e. State field offices and commissioners. The chief engineer, subject to the approval of the state board of agriculture, may establish field offices within this state to secure the best protection to all claimants of water therein and the most economical supervision thereof. Subject to the approval of the state board of agriculture, the chief engineer may appoint a water commissioner for

each field office so established, in accordance with the Kansas civil service laws, who shall be his or her agent in supervising the distribution of waters within the area served by such field office, according to the rights and priorities of all parties concerned, and who shall perform such other duties as the chief engineer may direct. (History: L. 1957.)

K.S.A. 82a-707. Principles governing appropriations; priorities. (a) Surface or ground waters of the state may be appropriated as herein provided. Such appropriation shall not constitute ownership of such water, and appropriation rights shall remain subject to the principle of beneficial use.

(b) Where uses of water for different purposes conflict such uses shall conform to the following order of preference: Domestic, municipal, irrigation, industrial, recreational and water power uses. However, the date of priority of an appropriation right, and not the purpose of use, determines the right to divert and use water at any time when the supply is not sufficient to satisfy all water rights that attach to it. The holder of a water right for an inferior beneficial use of water shall not be deprived of the use of the water either temporarily or permanently as long as such holder is making proper use of it under the terms and conditions of such holder's water right and the laws of this state, other than through condemnation.

(c) As between persons with appropriation rights, the first in time is the first in right. The priority of the appropriation right to use water for any beneficial purpose except domestic purposes shall date from the time of the filing of the application therefor in the office of the chief engineer. The priority of the appropriation right to use

water for domestic purposes shall date from the time of the filing of the application therefor in the office of the chief engineer or from the time the user makes actual use of water for domestic purposes, whichever is earlier.

(d) Any water right returned to the state under the provisions of K.S.A. 2-1915, and amendments thereto, shall be placed in the custodial care of the state. While in the custodial care of the state, the priority of the water right shall remain in effect and water available under the terms and conditions of the water right shall not be considered available for further appropriation. Any surface water right held in the custodial care of the state shall neither directly benefit nor impair any other surface water right within the stream reach designated for recovery. Any water right donated to the state shall be placed in the custodial care of the state or retired at the discretion of the chief engineer.

(e) Appropriation rights in excess of the reasonable needs of the appropriators shall not be allowed. (History: L. 1917; amended 1923; R.S. 1923; amended 1945; amended 1957; amended 1988.)

K.S.A. 82a-708. Repealed. (History: L. 1945; repealed 1957.)

K.S.A. 82a-708a. Applications for permits to appropriate water regardless of use by another; fee. (a) Any person may apply for a permit to appropriate water to a beneficial use, notwithstanding that the application pertains to the use of water by another, or upon or in connection with the lands of another. Any rights to the beneficial use of water perfected under such application shall attach to the lands on or in connection with which the water is used and shall

remain subject to the control of the owners of the lands as in other cases provided by law.

(b) Except as otherwise provided in subsections (d), (e) and (f), each application for a permit to appropriate water, except applications for permits for domestic use, shall be accompanied by an application fee fixed by this section for the appropriate category of acre feet in accordance with the following:

Acre Feet	Fee
0 to 100	$100
101 to 320	$150
More than 320	$150 + $10 for each additional 100 acre feet or any part thereof

(c) Except as otherwise provided in subsections (d), (e) and (f), each application for a permit to appropriate water for storage, except applications for permits for domestic use, shall be accompanied by an application fee fixed by this section for the appropriate category of storage-acre feet in accordance with the following:

Storage-Acre Feet	Fee
0 to 250	$100
More than 250	$100 + $10 for each additional 250 storage-acre feet or any part thereof

(d) Each application for a term permit pursuant to K.S.A. 2001 Supp. 82a-736, and amendments thereto, shall be accompanied by an application fee established by rules and regulations of the chief engineer in an amount not to exceed $400 for the five-year period covered by the permit.

(e) For any application for a permit to appropriate water, except applications for permits for domestic use, which proposes to appropriate by both direct flow and storage, the fee charged shall be the fee under subsection (b) or subsection (c), whichever is larger, but not both fees.

(f) Each application for a permit to appropriate water for water power or dewatering purposes shall be accompanied by an application fee of $100 plus $200 for each 100 cubic feet per second, or part thereof, of the diversion rate requested in the application for the proposed project.

(g) All fees collected by the chief engineer pursuant to this section shall be remitted to the state treasurer as provided in K.S.A. 82a-731 and amendments thereto. History: L. 1957, ch. 539, § 3; L. 1973, ch. 414, § 1; L. 1982, ch. 4, § 17; L. 1985, ch. 339, § 1; L. 1989, ch. 310, § 1; 2001, ch. 160, § 17; July 1.

K.S.A. 82a-708b. Application for change in place of use, point of diversion or use; fee; review of action on application. (a) Any owner of a water right may change the place of use, the point of diversion or the use made of the water, without losing priority of right, provided such owner shall: (1) Apply in writing to the chief engineer for approval of any proposed change; (2) demonstrate to the chief engineer that any proposed change is reasonable and will not impair existing rights; (3) demonstrate to the chief engineer that any proposed change relates to the same local source of supply as that to which the water right relates; and (4) receive the approval of the chief engineer with respect to any proposed change. The chief engineer shall approve or reject the application for change in accordance with the provisions and procedures prescribed for processing original applications for permission to appropriate

water. If the chief engineer disapproves the application for change, the rights, priorities and duties of the applicant shall remain unchanged. Any person aggrieved by an order or decision by the chief engineer relating to an application for change may petition for review thereof in accordance with the provisions of K.S.A. 2001 Supp. 82a-1901 and amendments thereto.

(b) Each application to change the place of use, the point of diversion or the use made of the water under this section shall be accompanied by the application fee set forth in the schedule below:

(1) Application to change a point of diversion 300 feet or less $50

(2) Application to change a point of diversion more than 300 feet 100

(3) Application to change the place of use 100

(4) Application to change the use made of the water 150

Any application submitted which requests two of the types of changes set forth above shall be accompanied by a fee of $150. Any application which requests three types of changes shall be accompanied by a fee of $250.

(c) All fees collected by the chief engineer pursuant to this section shall be remitted to the state treasurer as provided in K.S.A. 82a-731 and amendments thereto. History: L. 1957, ch. 539, § 4; L. 1982, ch. 4, § 18; L. 1985, ch. 339, § 2; L. 1990, ch. 361, § 1; L. 1999, ch. 130, § 4; July 1.

K.S.A. 82a-709. Same; contents; time of filing. No person may acquire an appropriation right to the use of waters of the state for other than domestic purposes without making an application to the chief engineer for a permit to make

such appropriation. However, any person using water for domestic purposes subsequent to June 28, 1945, and any person intending to use water hereafter for domestic purposes may make application to the chief engineer for a permit the same as any other person. The application shall set forth (a) the name and post-office address of the applicant;

(b) the source from which said appropriation shall be made;

(c) the maximum rate at which water is to be diverted or used and the total annual quantity of water sought;

(d) the location of the works or proposed works for the diversion and use of the water;

(e) the estimated time for the completion of any proposed works;

(f) the time of the first actual application of the water to the beneficial use involved, if there was such, and the estimated time for the first actual application of the water for the beneficial use proposed;

(g) if for irrigation use, a description of the land to be irrigated by designating the number of irrigable acres in each forty (40) acre tract or fractional portion thereof;

(h) if for municipal water supply, it shall give the present population to be served and estimated future requirements of the city;

(i) any additional factors which may be required by the chief engineer.

Such application shall be filed and approved before the commencement of any work in connection with the

construction, enlargement or extension of any works for the diversion, storage, and use of water. (History: L. 1945; amended 1957; amended 1977.)

K.S.A. 82a-710. Same; return for correction or completion; maps, plats, plans and drawings; default in refiling. Upon receipt of the application it shall be the duty of the chief engineer to endorse thereon the date of its receipt and assign a number to the same. If upon examination the application is found to be defective, inadequate or insufficient to enable such official to determine the nature and amount of the proposed appropriation, it shall be returned for correction or completion or for other required information. No application shall lose its priority of filing on account of such defects, provided acceptable data, proofs, maps, plats, plans and drawings are filed in the office of the chief engineer within thirty days following the date of the posting of the return of such application or such further time not exceeding one year as may be given by the chief engineer.

All maps, plats, plans and drawings shall conform to prescribed uniform standard as to materials, size, coloring and scale, and shall show: (a) The source from which the proposed appropriation is to be taken, (b) all proposed dams, dikes, reservoirs, canals, pipe lines, power houses and other structures for the purpose of storing, conveying or using water for the purpose approved and their positions or courses in connection with the boundary lines and corners of the lands which they occupy. Land listed for irrigation shall be shown in government subdivisions or fractions thereof. Default in the refiling of any application within the time limit specified shall constitute a forfeiture of priority date and the dismissal of the application. (History: L. 1945.)

K.S.A. 82a-711. Permits to appropriate water; standards for approval of use; review of action on application. (a) If a proposed use neither impairs a use under an existing water right nor prejudicially and unreasonably affects the public interest, the chief engineer shall approve all applications for such use made in good faith in proper form which contemplate the utilization of water for beneficial purpose, within reasonable limitations except that the chief engineer shall not approve any application submitted for the proposed use of fresh water in any case where other waters are available for such proposed use and the use thereof is technologically and economically feasible. Otherwise, the chief engineer shall make an order rejecting such application or requiring its modification to conform to the public interest to the end that the highest public benefit and maximum economical development may result from the use of such water.

(b) In ascertaining whether a proposed use will prejudicially and unreasonably affect the public interest, the chief engineer shall take into consideration:

(1) Established minimum desirable streamflow requirements;

(2) the area, safe yield and recharge rate of the appropriate water supply;

(3) the priority of existing claims of all persons to use the water of the appropriate water supply;

(4) the amount of each claim to use water from the appropriate water supply; and

(5) all other matters pertaining to such question.

(c) With regard to whether a proposed use will impair a use under an existing water right, impairment shall

include the unreasonable raising or lowering of the static water level or the unreasonable increase or decrease of the streamflow or the unreasonable deterioration of the water quality at the water user's point of diversion beyond a reasonable economic limit. Any person aggrieved by any order or decision by the chief engineer relating to that person's application for a permit to appropriate water may petition for review thereof in accordance with the provisions of K.S.A. 1999 Supp. 82a-1901 and amendments thereto. (History: L. 1945, ch. 390, § 11; L. 1957, ch. 539, § 16; L. 1977, ch. 356, § 6; L. 1980, ch. 332, § 3; L. 1986, ch. 392, § 3; L. 1991, ch. 292, § 3; L. 1999, ch. 130, § 5; July 1.)

K.S.A. 82a-711a. Same; express conditions of appropriations. It shall be an express condition of each appropriation of surface or ground water that the right of the appropriator shall relate to a specific quantity of water and that such right must allow for a reasonable raising or lowering of the static water level and for the reasonable increase or decrease of the streamflow at the appropriator's point of diversion: PROVIDED, That in determining such reasonable raising or lowering of the static water level in a particular area, the chief engineer shall consider the economics of diverting or pumping water for the water uses involved; and nothing herein shall be construed to prevent the granting of permits to applicants later in time on the ground that the diversions under such proposed later appropriations may cause the water level to be raised or lowered at the point of diversion of a prior appropriator, so long as the rights of holders of existing water rights can be satisfied under such express conditions. (History: L. 1957.)

K.S.A. 82a-712. Same; notice of approval or disapproval of application; approval constitutes permit. The chief

engineer shall notify the applicant of the approval or disapproval of the application. Upon approving the application the chief engineer shall authorize the applicant to proceed with the construction of the proposed diversion works and to proceed with all steps necessary for the application of the water to the approved and proposed beneficial use and otherwise perfect his or her proposed appropriation. The chief engineer may approve an application for a smaller amount of water than requested and he or she may approve an application upon such terms, conditions, and limitations as he or she shall deem necessary for the protection of the public interest. The approval of the application by the chief engineer, subject to the terms and conditions thereof, upon issuance, constitutes a permit to proceed with construction of diversion or other authorized works and with the diversion and use of water in accordance with the terms and conditions of his or her permit and no common-law claimant without a vested right, or other person without a vested right, a prior appropriation right, or an earlier permit shall prevent, restrain, or enjoin an applicant from proceeding in accordance with the terms and conditions of his or her permit or from diminishing the water supply. (History: L. 1945; amended 1957.)

K.S.A. 82a-713. Same; limiting time for perfection of appropriation; extension. The chief engineer shall limit the time for the perfecting of an appropriation to a reasonable period within which the proposed works can be completed by expeditious procedure, and he or she shall for good cause shown by the applicant allow an extension of time. (History: L. 1945.)

K.S.A. 82a-714. Same; completion of works; extension of time; certificate of appropriation; fees. (a) Upon the

completion of the construction of the works and the actual application of water to the proposed beneficial use within the time allowed, the applicant shall notify the chief engineer to that effect. The chief engineer or the chief engineer's duly authorized representative shall then examine and inspect the appropriation diversion works and, if it is determined that the appropriation diversion works have been completed and the appropriation right perfected in conformity with the approved application and plans, the chief engineer shall issue a certificate of appropriation in duplicate. The original of such certificate shall be sent to the owner and shall be recorded with the register of deeds in the county or counties wherein the point of diversion is located, as are other instruments affecting real estate, and the duplicate shall be made a matter of record in the office of the chief engineer.

(b) Not later than 60 days before the expiration of the time allowed in the permit to complete the construction of the appropriation diversion works or the time allowed in the permit to actually apply water to the proposed beneficial use, the chief engineer shall notify the permit holder by certified mail that any request for extension of such time must be filed with the chief engineer before the expiration of the time allowed in the permit.

(c) Unless the applicant requests an extension or the certificate has not been issued due to the applicant's failure to comply with reasonable requests for information or to allow the opportunity to examine and inspect the appropriation diversion works, as necessary for certification, the chief engineer shall certify an appropriation:

(1) Before July 1, 2004, if the time allowed in the permit to perfect the water right expired before July 1, 1999; or

(2) not later than five years after the date the applicant notifies the chief engineer of the completion of construction of the works and the actual application of water to the proposed beneficial use within the time allowed, in all other cases.

If the chief engineer fails to issue a certificate within the time provided by this subsection, the applicant may request review, pursuant to K.S.A. 1999 Supp. 82a-1901 and amendments thereto, of the chief engineer's failure to act.

(d) Except for works constructed to appropriate water for domestic use, each notification to the chief engineer under subsection (a) shall be accompanied by a field inspection fee of $200. Failure to pay the field inspection fee, after reasonable notice by the chief engineer of such failure, shall result in the permit to appropriate water being revoked, forfeiture of the priority date and revocation of any appropriation right that may exist. All fees collected by the chief engineer pursuant to this section shall be remitted to the state treasurer as provided in K.S.A. 82a-731 and amendments thereto

(e) A request for an extension of time to: (1) Complete the diversion works; or (2) perfect the water right, shall be accompanied by a fee of $50.

(f) A request to reinstate a water right or a permit to appropriate water which has been dismissed shall be filed with the chief engineer within 60 days of the date dismissed and shall be accompanied by a fee of $100.

History: L. 1945, ch. 390, § 14; L. 1957, ch. 539, § 20; L. 1985, ch. 339, § 3; L. 1990, ch. 362, § 1; L. 1999, ch. 130, § 6; July 1.

K.S.A. 82a-715. Same; validation of certain applications. All applications for the appropriation of water to beneficial use as filed with the chief engineer, subsequent to May 5, 1941, and all processing, proceedings and certificates pertaining thereto are validated to same extent as if filed after the effective date of this act, but with priorities as of the dates of filing of applications. All subsequent processing of such applications as are still pending and undetermined shall be further considered and processed as provided in this act. (History: L. 1945.)

K.S.A. 82a-716. Common-law claimants; action for compensation; injunctions. If any appropriation, or the construction and operation of authorized diversion works results in an injury to any common-law claimant, such person shall be entitled to due compensation in a suitable action at law against the appropriator for damages proved for any property taken. Any person with a valid water right or permit to divert and use water may restrain or enjoin in any court of competent jurisdiction a subsequent diversion by a common-law claimant without vested rights without first condemning those common-law rights. An appropriator shall have the right to injunctive relief to protect his or her prior right of beneficial use as against use by an appropriator with a later priority of right. (History: L. 1945; amended 1957.)

K.S.A. 82a-717. Repealed. (History: L. 1945; repealed 1957.)

K.S.A. 82a-717a. Diversions by common-law claimants and others; injunctions. No common-law claimant without a vested right, or other person without a vested right, a prior appropriation right, or an earlier permit shall divert or threaten to divert water if such diversion or threatened

diversion impairs or would impair any vested right, appropriation right, or right under a permit to appropriate water. But any common-law claimant with a vested right, or other person with a vested right, a prior appropriation right, or an earlier permit may divert water in accordance with any such right or permit although such diversion or use thereunder conflicts with the diversion, use, proposed diversion, or proposed use made or proposed by a common-law claimant who does not have a vested right, or other person who does not have a vested right, a prior appropriation right or an earlier permit. Moreover, any common-law claimant with a vested right, or other person with a vested right, a prior appropriation right, or an earlier permit may restrain or enjoin in any court of competent jurisdiction any diversion or proposed diversion that impairs or would impair such right in the event that any such diversion or proposed diversion is made or is threatened to be made by any common-law claimant, or other person who does not have a vested right, a prior appropriation right, or an earlier permit. (History: L. 1957.)

K.S.A. 82a-718. Abandonment of water rights; notices; hearing; review of action; exceptions. (a) All appropriations of water must be for some beneficial purpose. Every water right of every kind shall be deemed abandoned and shall terminate when without due and sufficient cause no lawful, beneficial use is henceforth made of water under such right for five successive years. Before any water right shall be declared abandoned and terminated the chief engineer shall conduct a hearing thereon. Notice shall be served on the user at least 30 days before the date of the hearing. The determination of the chief engineer pursuant to this section shall be subject to review in accordance

with the provisions of K.S.A. 1999 Supp. 82a-1901, and amendments thereto.

The verified report of the chief engineer or such engineer's authorized representative shall be prima facie evidence of the abandonment and termination of any water right.

(b) When no lawful, beneficial use of water under a water right has been reported for three successive years, the chief engineer shall notify the user, by certified mail, return receipt requested, that: (1) No lawful, beneficial use of the water has been reported for three successive years; (2) if no lawful, beneficial use is made of the water for five successive years, the right may be terminated; and (3) the right will not be terminated if the user shows that for one or more of the five consecutive years the beneficial use of the water was prevented or made unnecessary by circumstances that are due and sufficient cause for nonuse, which circumstances shall be included in the notice.

(c) The provisions of subsection (a) shall not apply to a water right that has not been declared abandoned and terminated before the effective date of this act if the five years of successive nonuse occurred exclusively and entirely before January 1, 1990. However, the provisions of subsection (a) shall apply if the period of five successive years of nonuse began before January 1, 1990, and continued after that date. (History: L. 1945, ch. 390, § 19; L. 1957, ch. 539, § 23; L. 1988, ch. 356, § 350; L. 1999, ch. 122, § 1; L. 1999, ch. 149, § 13; July 1.)

K.S.A. 82a-719. Distribution of water according to decree of court. Whenever the rights for the use of waters of the state shall have been adjudicated by any court, the division of water resources with the aid of its chief engineer

and other officers and employees, shall aid in the distribution of such water according to such decree and shall distribute the water among the several ditches or water users pursuant to the decree; and shall have the power to open, close or adjust the headgates and regulate the controlling works of any ditch or structure, or cause the same to be opened, closed, adjusted and regulated so as to make a distribution of the water in conformity with the decree. (History: L. 1933; amended 1945.)

K.S.A. 82a-720. Same; certified copies of decrees. The clerk of any court of this state in which a decree shall be made fixing the rights pertaining to ditches or water users to water, shall within ten days after such decree shall have been entered, forward to the chief engineer of the division of water resources, by registered mail, a certified copy of such decree. (History: L. 1933; amended 1945.)

K.S.A. 82a-721. Construction of act. This act shall be construed liberally to effectuate the purposes hereof, and the enumeration of specific powers in this act shall not operate to restrict the meaning of any general grant of power contained in this act or to exclude other powers comprehended in such general grant. (History: L. 1945.)

K.S.A. 82a-721a. Same; damages to land. Nothing in this act shall be construed as limiting any right of an owner of an estate or interest in or concerning land to recover damage for any injury done to his or her land or to any water rights appurtenant thereto. (History: L. 1957.)

K.S.A. 82a-722. Invalidity of part. If any clause, sentence, paragraph, section or part of this act shall be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not affect, impair or invalidate the remainder thereof, but shall be confined in its operation to

the clause, sentence, paragraph, section or part thereof directly involved in the controversy in which such judgment shall have been rendered, and it shall be presumed that the legislature would have enacted this law with the section, subsection or clause held to be invalid, omitted. (History: L. 1945.)

K.S.A. 82a-723. Repealed. (History: L. 1955; repealed 1957.)

K.S.A. 82a-724. Review of administrative actions. Any order pursuant to K.S.A. 1999 Supp. 82a-1901 and amendments thereto upon review of any action of the chief engineer pursuant to K.S.A. 82a-704a, 82a-708b, 82a-711 or 82a-718, and amendments thereto, is subject to review in accordance with the act for judicial review and civil enforcement of agency actions. (History: L. 1957, ch. 539, § 24; L. 1978, ch. 435, § 1; L. 1986, ch. 318, § 143; L. 1999, ch. 130, § 8; July 1.)

K.S.A. 82a-725. Same; reference to state division or its chief engineer; procedures; cases in federal courts. In any suit to which the state is not a proper party brought in any court of competent jurisdiction in this state for determination of rights to water, the court may order a reference to the division of water resources or its chief engineer, as referee, for investigation of and report upon any or all of the physical facts involved and the division or its chief engineer shall thereupon make such an investigation and report as ordered by the court. The report shall set forth such findings of fact as may be required by the court's order of reference and may contain such opinions upon the facts as it deems proper in view of the issues submitted. Before filing its report, the division or its chief engineer

shall mail notice of its report, together with a copy of it, to the parties or their attorneys of record.

Within thirty (30) days from the date of the mailing of the copy of the report, any party may file objections to it with the division of water resources or its chief engineer. After the division, or its chief engineer, has considered the objections, it shall file its report, as referee, with the clerk of the court and give notice by registered or certified mail of the filing of its report to the parties or their attorneys. The court shall review the report upon exceptions thereto filed with the clerk of the court within thirty (30) days after date of mailing registered notice of filing of the report. Except in its discretion or for good cause shown, the court shall not consider any exception to the report unless it appears that the excepting party presented the matter of the exception to the division or its chief engineer in the form of an objection. The report shall be evidence of the physical facts found therein, but the court shall hear such evidence as may be offered by any party to rebut the report or the evidence. If suit is brought in a federal court for determination of rights to water within, or partially within, the state, the division or its chief engineer may accept a reference of such suit as master or referee for the court. (History: L. 1957.)

K.S.A. 82a-726. Diversion and transportation of water for use in another state; approval by chief engineer; conditions. Any person intending to divert and transport water produced from a point or points of diversion located in this state for use in another state, shall make application to the chief engineer for a permit to appropriate water for beneficial use or file an application for change in point of diversion, place of use, type of use or any combination thereof. Subject to the provisions of subsection (b), the

chief engineer shall approve such application upon such terms, conditions and limitations that the chief engineer shall deem necessary for the protection of public interest, including an express condition that if any such water is necessary to protect the public health and safety of the citizens of this state, such approved application may be suspended, modified or revoked by the chief engineer for such necessity.

(b) The chief engineer shall approve an application pursuant to this section only if the chief engineer finds that:

(1) The diversion and transportation of such water complies with the Kansas water appropriation act, the water transfer act and any other state law pertaining to such diversion, transportation and use of water;

(2) the statutes and common law of the state where such water will be used do not prohibit the use of water at the proposed place of use or for the proposed type of use, or both, if the water were to be diverted in that state; and

(c) In order to make the finding required by subsection (b)(2), the chief engineer shall rely on a determination by the attorney general of the other state of whether the proposed use would be prohibited in that state. (History: L. 1976; amended 1984; amended 2000.)

K.S.A. 82a-727. Temporary permits to appropriate water; extension; fee; rules and regulations. (a) Subject to existing water rights and the principle of beneficial use, the chief engineer may grant upon application made therefor temporary permits and extensions thereof to appropriate water in any case where the public interest in such water

will not be unreasonably or prejudicially affected, except that the chief engineer shall not grant any such permit to appropriate fresh water in any case where other waters are available for the proposed use and the use thereof is technologically and economically feasible. No such temporary permit or any extension thereof shall be granted for a period of time in excess of six months. Each application submitted for a temporary permit or extension thereof shall be accompanied by an application fee of $100.

(b) The chief engineer shall adopt rules and regulations to effectuate and administer the provisions of this section.

(c) Nothing in this section shall be deemed to vest in the holder of any permit granted pursuant to provisions of this section any permanent right to appropriate water except as is provided by such permit.

(d) All fees collected by the chief engineer pursuant to this section shall be remitted to the state treasurer as provided in K.S.A. 82a-731 and amendments thereto. History: L. 1977, ch. 356, § 1; L. 1982, ch. 4, § 19; L. 1985, ch. 339, § 4; July 1.

K.S.A. 82a-728. Unlawful acts; penalties. (a) Except for the appropriation of water for the purpose of domestic use, the production and return of salt water in connection with the operation of oil and gas wells in accordance with the written approval granted therefor by the Kansas corporation commission pursuant to K.S.A. 55-901, and amendments thereto, the withdrawal and use of water in accordance with provisions of K.S.A. 82a-1313, and amendments thereto, and the annual diversion and beneficial use of not more than 15 acre feet of surface water impounded in any reservoir having a total water volume of less than 15 acre feet, it shall be unlawful for

any person to appropriate or threaten to appropriate water from any source without first applying for and obtaining a permit to appropriate water in accordance with the provisions of chapter 7 of article 82a of the Kansas Statutes Annotated and acts amendatory thereof or supplemental thereto or, for any person to violate any condition of a vested right, appropriation right or an approved application for a permit to appropriate water for beneficial use. As used in this subsection salt water shall mean water containing more than 5,000 milligrams per liter chlorides.

(b) (1) The violation of any provision of this section by any person is a class C misdemeanor. (2) Each day that any such violation occurs after notice of the original violation is given by the chief engineer to any such violator by restricted mail shall constitute a separate offense. (History: L. 1977; amended 1981.)

K.S.A. 82a-729. Act supplemental to article 7 of chapter 82a of the Kansas Statutes Annotated. The provisions of K.S.A. 82a-727 and 82a-728 shall be a part of and supplemental to the provisions of article 7 of chapter 82a of the Kansas Statutes Annotated and acts amendatory thereof or supplemental thereto. (History: L. 1977.)

K.S.A. 82a-730. Citation of act. K.S.A. 82a-701 to 82a-726, inclusive, and acts amendatory thereof and supplemental thereto shall be called and may be cited as the Kansas water appropriation act. (History: L. 1977; amended 1984.)

K.S.A. 82a-731. Water appropriation certification fund created; expenditures therefrom. There is hereby created in the state treasury the water appropriation certification fund. The chief engineer of the division of water resources of the state board of agriculture shall remit all moneys received under K.S.A. 82a-708a, 82a-708b and 82a-727,

and any amendments to these sections, to the state treasurer at least monthly. Upon receipt of any such remittance the state treasurer shall deposit the entire amount thereof in the state treasury and the same shall be credited to the water appropriation certification fund. All expenditures from the water appropriation certification fund shall be made in accordance with appropriation acts upon warrants of the director of accounts and reports issued pursuant to vouchers approved by the secretary of the state board of agriculture or by a person designated by the secretary. (History: L. 1982.)

K.S.A. 82a-732. Annual water use reports required, contents; penalty; disposition of fines. (a) The owner of a water right or permit to appropriate water for beneficial use, except for domestic use, shall file an annual water use report on a form prescribed by the chief engineer of the division of water resources of the state board of agriculture on or before March 1 following the end of the previous calendar year. The report shall completely and accurately set forth such water use information as requested by the chief engineer.

(b) Any person failing to file a water use report or other documents required under the provisions of subsection (a) shall be subject to a civil penalty in an amount not to exceed $250. The chief engineer upon a finding that the owner of a water right or permit to appropriate water for beneficial use has failed to file such a report may impose a civil penalty as provided in this section. Any person filing a document knowing it to contain any false information as to a material matter shall be guilty of a class C misdemeanor. All fines collected by the chief engineer pursuant to this subsection shall be remitted to the state treasurer

as provided in K.S.A. 82a-731, and amendments thereto. (History: L. 1988; amended 1991.)

K.S.A. 82a-733. Conservation plans and practices. (a) The chief engineer may require an applicant for a permit to appropriate water for beneficial use or the owner of a water right or permit to appropriate water for beneficial use to adopt and implement conservation plans and practices. The chief engineer shall not mandate the adoption and implementation of conservation plans and practices except pursuant to a finding that such plans and practices will assure public benefit and promote public interest. In selecting the applications, water rights or permits for which conservation plans and practices are required to be adopted and implemented, the chief engineer shall give priority to: (1) Water users that share a common source of supply that could be insufficient during times of drought; (2) water users whose use is significantly higher than their peers from the same geographical area with comparable circumstances; and (3) water users who apply for any state administered grant, loan or cost-share moneys for water-related projects. Prior to requiring the adoption and implementation of conservation plans and practices, the chief engineer shall assess the availability of technical assistance and inform the owner of a water right or permit to appropriate water for beneficial use or the applicant for such a permit who is required to adopt and implement a conservation plan and practices of the available sources of technical assistance to prepare the conservation plan.

(b) The chief engineer shall allow the owner of a water right or permit to appropriate water for beneficial use or the applicant for such a permit a minimum of 60 days to prepare a required conservation plan. The time allowed to

prepare the required conservation plan may be extended by the chief engineer for good cause shown by the applicant. The chief engineer shall provide the owner of the water right or permit to appropriate water for beneficial use or the applicant for such a permit a reasonable time to implement the conservation plan and, for good cause shown, such as the need to apply extensive land treatment practices, the chief engineer may extend the time for implementation for a period of up to five years.

(c) Plans and practices required pursuant to this section shall be consistent with the guidelines for conservation plans and practices developed and maintained by the Kansas water office pursuant to subsection (c) of K.S.A. 74-2608 and amendments thereto. If requested by the owner of the water right or permit to appropriate water for beneficial use or the applicant for such a permit, the chief engineer, in consultation with the director of the Kansas water office, shall determine whether such plans and practices are consistent with the guidelines adopted by the Kansas water office. The Kansas water office shall provide, or arrange to provide, technical assistance for water users required to adopt and implement conservation plans and practices pursuant to this section.

(d) Before any state agency makes any loan or grant, or provides any cost-share funds, for any water-related projects to any person or entity, the state agency may require the person or entity to submit to, and have approved by, the chief engineer a water conservation plan consistent with the guidelines for conservation plans and practices developed and maintained by the Kansas water office pursuant to subsection (c) of K.S.A. 1990 Supp. 74-2608 and amendments thereto.

(e) As used in this section, "water-related projects" shall include, but not be limited to, the following: Interconnections between water supply systems; development of new water supply and delivery systems; improvements or repairs to an existing water supply system, sanitary sewer system or water treatment system, which would significantly increase the amount of water used; small lakes development, improvement or repair; and development of other small impoundments for public water supply or irrigation.

(f) The chief engineer may approve the conservation plans and practices required pursuant to the provisions of this section on such terms, conditions and limitations as deemed necessary to carry out the provisions of this section. The implementation of the conservation plan and practices as approved or any subsequent approved modification shall constitute a condition of the water right or permit to appropriate water for beneficial use.

(g) Any conservation plans and practices required pursuant to this section with regard to any groundwater right or permit to appropriate groundwater from within the boundaries of a groundwater management district shall be subject to approval by both the chief engineer and the board of directors of the groundwater management district unless such plans and practices are incorporated in the groundwater management district's management program which has been approved by the chief engineer pursuant to K.S.A. 82a-1029 and amendments thereto.

(h) The chief engineer may delegate authority to implement and enforce any of the provisions of this section to a groundwater management district on such terms as may

be appropriate and necessary to carry out the provisions of this section within the boundaries of such district.

(i) The chief engineer may delegate to any city which has conservation plans meeting state guidelines the authority to require domestic water users within such city to adopt and implement conservation plans and practices so that such city can require compliance from private domestic well owners within the city limits.

(j) This section shall be part of and supplemental to the Kansas water appropriation act. (History: L. 1991.)

K.S.A. 82a-734. Sand and Gravel pits; reports; evaporation not beneficial use or diversion, when. (a) An operator will notify the chief engineer of the division of water resources of the state board of agriculture of the location and area extent of any existing or proposed sand and gravel pit to be excavated, expanded or operated by the operator.

(b) Unless the chief engineer determines that it has a substantially adverse impact on the area groundwater supply, the evaporation of water exposed as the result of the opening or operation of sand and gravel pits shall not be construed to be a beneficial use or diversion of water for the purposes of the Kansas water appropriation act, K.S.A. 82a-701 et seq., and amendments thereto.

(c) Evaporation from sand and gravel pits, as calculated by the chief engineer, will be reported as an industrial use to the director of taxation for the purpose of assessing the water protection fee pursuant to K.S.A. 92a-954(*), and amendments thereto. (History: L. 1995)

K.S.A. 82a-735. Sunflower ammunition plant water rights. (a) The state of Kansas shall have the sole

authority to enter into negotiations, agreements and contracts with the federal government regarding water rights, file number 37 and file number 38, appurtenant to federal property located in Johnson county. The Kansas water office, on behalf of the state, shall enter into such negotiations, agreements and contracts when the Kansas water office deems it necessary for the achievement of policies of the state relative to the water resources of the state. Such negotiations, agreements and contracts shall be for the purpose of:

(1) The return of such water rights to the state, in which case the rights shall be terminated and their priority forfeited; or

(2) the acquisition of such water rights by the state.

(b) Any agreement or contract entered into pursuant to this section shall be binding on the state only upon adoption by the legislature of a concurrent resolution approving such agreement or contract.

(c) If water rights are acquired by the state pursuant to this section:

(1) The Kansas water office, on behalf of the state, shall accept and hold such water rights in trust;

(2) the Kansas water office shall have no authority to assign, transfer or otherwise dispose of such water rights;

(3) all contractual agreements associated with such water rights shall remain in effect and the provisions of K.S.A. 82a-718 and amendments thereto shall not apply to such water rights while held by the Kansas water office; and

(4) the Kansas water office shall make all annual payments associated with such acquired water rights to any water assurance district under the provisions of the water assurance program act until such time as such water rights are transferred to another person or entity.

(d) Changes to any water rights acquired by the state pursuant to this section shall be in accordance with the Kansas water appropriation act, including the provisions of K.S.A. 82a-708b and amendments thereto. (History: L. 1999, ch. 122, § 2; July 1.)

Rules and Regulations
Water Appropriation Act
Division of Water Resources
Kansas Department of Agriculture
April 3, 2002

K.A.R. 5-1-1. Definitions. As used in these regulations and the Kansas water appropriation act, and by the division of water resources in the administration of the Kansas water appropriation act, unless the context clearly requires otherwise, the following words and phrases shall have the meanings ascribed to them in this regulation.

(a) "Above-baseflow stage" means streamflow that is in response to a significant runoff event during which period the water level elevation of the stream is greater than the elevation of the adjacent water table.

(b) "Acceptable quality surface water" means surface water that will not degrade the quality of the groundwater source into which it is discharged.

(c) "Application" means the formal document submitted on the form prescribed by the chief engineer for a permit to appropriate water for beneficial use and filed in the office of the chief engineer as provided by K.S.A. 82a-708a and 82a-709, and amendments thereto.

(d) "Approval of application" means a permit to proceed with construction of diversion works and the diversion and use of water in accordance with the terms and conditions set forth in the permit. Approval of application shall not constitute any permit that may be required by other state laws.

(e) "Aquifer storage" means the act of storing water in the unsaturated portion of an aquifer by artificial recharge for subsequent diversion and beneficial use.

(f) "Aquifer storage and recovery system" means the physical infrastructure that meets the following conditions:

(1) Is constructed and operated for artificial recharge, storage, and recovery of source water; and

(2) consists of apparatus for diversion, treatment, recharge, storage, extraction, and distribution.

(g) "Artificial recharge" means the use of source water to artificially replenish the water supply in an aquifer.

(h) "Authorized representative" means any staff employee designated by the chief engineer to perform duties and functions on behalf of the chief engineer.

(i) "Bank storage" means water absorbed by and temporarily stored in the banks and bed of a stream during above-baseflow stage.

(j) "Bank storage well" means a well used to divert or withdraw water from bank storage.

(k) "Basin storage area" means the portion of the aquifer's unsaturated zone used for aquifer storage that has defined horizontal boundaries and is delimited by the highest and lowest index water level elevations.

(l) "Basin storage loss" means that portion of artificial recharge naturally flowing or discharging from the basin storage area.

(m) "Basin term permit" means a term permit to appropriate surface water from a stream within a specific drainage basin, or a portion of it, for a reasonable quantity of water, not to exceed a maximum of 100 acre-feet per calendar year, for use in either of the following:

(1) Drilling oil and gas wells; or

(2) construction projects within the specified basin.

(n) "Battery of wells" means two or more wells connected to a common pump by a manifold, or not more than four wells in the same local source of supply within a 300-foot-radius circle that are being operated by pumps not to exceed a total maximum rate of diversion of 800 gallons per minute and that supply water to a common distribution system.

(o) "Beneficial uses of water" are the following:

(1) Domestic uses;

(2) stockwatering;

(3) municipal uses;

(4) irrigation;

(5) industrial uses;

(6) recreational uses;

(7) waterpower;

(8) artificial recharge;

(9) hydraulic dredging;

(10) contamination remediation;

(11) dewatering;

(12) fire protection; and

(13) thermal exchange.

(p) "Completed substantially as shown on aerial photograph, topographic map, or plat," as used to define the authorized point of diversion, means within 300 feet of the location as shown on the aerial photograph, topographic map, or plat accompanying the application.

(q) "Confined Dakota aquifer system" means that portion of the Dakota aquifer system overlain by Graneros shale.

(r) Conjunctive use" means the safe-yield management and operation of an aquifer in coordination with a surface water system to enhance the use of the total water supply availability in accordance with the provisions of the water appropriation act.

(s) "Contamination remediation" means the diversion of water by a state agency, or under a written agreement or order of an appropriate state agency, for the purpose of improving the water quality.

(t) "Dakota aquifer system" shall include the Dakota formation, the Kiowa formation, the Cheyenne sandstone, and, where hydraulically connected, the Morrison formation.

(u) "Dakota aquifer system well" means a well or proposed well screened in whole or in part in the Dakota aquifer system.

(v) "Dewatering" means the removal of surface water or groundwater to achieve either of the following:

(1) Facilitate the construction of a building, pipeline, or other facility; or

(2) protect a building, levee, mining activity, or other facility.

(w) "Direct diversion of surface water" means the diversion of surface water directly from a stream by means of a pump, headgate, siphon, or similar installation, for application to beneficial use without storing it behind a dam, levee, or similar type of structure.

(x) "Diversion" means the act of bringing water under control by means of a well, pump, dam, or other device for delivery and distribution for the proposed use.

(y) "Diversion works" means any well, pump, power unit, power source, dam, and any other devices necessary to bring water under control for delivery to a distribution system by which the water will be distributed to the

proposed use and any other equipment required as a condition of the permit, including a check valve, water level measurement tube, meter, or other measuring device.

(z) "Division" means the division of water resources of the Kansas department of agriculture.

(aa) "Dry hydrant" means a permanent, unpressurized intake pipe used to remove water from a pond, stream, reservoir, or other surface water supply by means of suction or vacuum supplied by a fire truck or other portable pumping device.

(bb) "Field inspection" means that for the purpose of issuing a certificate of appropriation pursuant to K.S.A. 82a-714 and amendments thereto, the chief engineer conducts a test of the rate of diversion of the diversion works under the normal and maximum conditions that the diversion works actually applied water to beneficial use during the perfection period. The chief engineer also collects all other information necessary to prepare a certificate, including the following:

(1) A description of the location and size of the place where water was actually applied to beneficial use during the perfection period in accordance with the terms, conditions, and limitations of the approval of application;

(2) information on the quantity and rate of water that was applied to the authorized use during the perfection period; and

(3) the actual location of the point or points of diversion from which water was diverted in accordance with the terms, conditions, and limitations of the approval of application.

(cc) "Fire protection" means the use of water for fire protection by a fire department for public protection in general.

(dd) "Fish farming" means the controlled cultivation and harvest of aquatic animals.

(ee) "Flow-straightening vanes" means vanes, or other device installed at the upstream throat of a measuring chamber for the purpose of aligning all velocity components of flow parallel with the flow in the measuring chamber at the water flowmeter sensor location.

(ff) "Full irrigation" means the application of water to crops during the growing season. Full irrigation shall include water for preirrigation.

(gg) "Groundwater" means water below the surface of the earth.

(hh) "Growing season" means the average frost-free period of the year.

(ii) "Household purposes" means the use of water by a person for cooking, cleaning, washing, bathing, human consumption, rest room facilities, fire protection, and other uses normally associated with the operation of a household.

(1) "Fire protection" shall be considered to be use of water for "household purposes" if either of the following conditions is met:

(A) Water is available from a "dry hydrant" that has been installed on a pond located within 1,000 feet of the residence.

(B) Water can be pumped from a well located within 1,000 feet of the residence for fire protection.

(2) Household purposes shall also include the replacement of the potential net evaporation from a domestic pond of up to ½ acre in surface area if both of the following conditions are met:

(A) The pond is utilized for aesthetic purposes as an integral part of the landscaping of a house.

(B) Any portion of the pond is located within 300 feet of the closest edge of the house.

(3) The maximum reasonable annual quantity of groundwater that may be pumped into a pond to be withdrawn later for domestic fire protection shall not exceed 0.06 acre-feet plus the average annual potential net evaporation for a pond at that location in the state having a surface area of 0.2 of an acre.

(4) Household purposes shall also include the use of 1½ acre-feet of water or less per calendar year by an industrial user, restaurant, hotel, motel, church, camp, correctional facility, educational institution, or similar entity for household purposes.

(jj) "Hydraulic dredging" means the removal of saturated aggregate from a stream channel, pit, or quarry by means of hydraulic suction and the pumping of the aggregate and water mixture as a slurry to a location where at least 95% of the water returns directly to the source of supply.

(kk) "Immediate vicinity," as used in specifying the place of use for a water right in which the water is authorized to be used for municipal purposes, means within

2,640 feet of the corporate limits of the municipality, rural water district, or other entity.

(ll) "In compliance" means that a water flowmeter does not meet any of the criteria of K.A.R. 5-1-9 for being out of compliance.

(mm) "Index water level" means water level elevations established spatially throughout a basin storage area to be used to represent the maximum volume of a basin storage area, and storage available for recovery based upon accounting methodology, and conditions of the permit.

(nn) "Indirect use" means the total of the seepage loss and the average annual potential net evaporation loss from the surface of water originally impounded in a reservoir for beneficial use.

(oo) "Industrial use" means the use of water in connection with the manufacture, production, transport, or storage of products, or the use of water in connection with providing commercial services, including water used in connection with steam electric power plants, greenhouses, fish farms, poultry operations that are not incidental to the operation of a traditional farmstead pursuant to K.S.A. 82a-701(c) and amendments thereto, secondary and tertiary oil recovery, air conditioning, heat pumps, equipment cooling, and all uses of water associated with the removal of aggregate for commercial purposes except the following:

(1) The evaporation caused by exposing the groundwater table or increasing the surface area of a stream, lake, pit, or quarry by excavation or dredging, unless the

evaporation has a substantially adverse impact on the area groundwater supply; and

(2) hydraulic dredging.

(pp) "Irrigation use" means the use of water for the following:

(1) The growing of crops;

(2) the watering of gardens, orchards, and lawns exceeding two acres in area; and

(3) the watering of golf courses, parks, cemeteries, athletic fields, racetrack grounds, and similar facilities.

(qq) "Measuring chamber" means a cylindrical chamber in which a water flowmeter is installed that is calibrated to match the measuring element of the water flowmeter and the nominal size of the pipe in which it is installed.

(rr) "Municipal use" means the various uses made of water delivered through a common distribution system operated by any of the following:

(1) A municipality;

(2) a rural water district;

(3) a water district;

(4) a public wholesale water supply district;

(5) any person or entity serving 10 or more hookups for residences or mobile homes; or

(6) any other similar entity distributing water to other water users for various purposes.

Municipal use shall also include the use of water by restaurants, hotels, motels, churches, camps, correctional facilities, educational institutions, and similar entities using water that does not qualify as a domestic use.

(ss) "Nonvolatile memory" means the ability of a water flowmeter to retain the values stored in the mechanical or electronic memory if all power, including backup battery power, is removed.

(tt) "Normal operating range" means the range of flow rates for which the water flowmeter will meet the accuracy requirements of K.A.R. 5-1-4 (a), as certified by the water flowmeter manufacturer.

(uu) "Off-season irrigation" means the application of water to land for the purpose of storing moisture in the soil for future use by a crop that will not be irrigated during the growing season.

(vv) "Operator," as used in the regulation of sand and gravel pits, means any person who engages in mining sand or gravel, or both.

(ww) "Perfect" means the actions taken by a water user to develop an approval of application into a water right. These actions shall consist of the completion of the diversion works and the actual application of water to the authorized beneficial use in accordance with the terms, conditions, and limitations of the approval of application.

(xx) "Point of diversion" means the point at which water is diverted or withdrawn from a source of water supply.

(yy) "Point of diversion for storage of surface water in a reservoir created by a dam" means the point at which

the longitudinal axis of the dam crosses the centerline of the stream impounded by the reservoir.

(zz) "Potential annual runoff" means the mean annual runoff for the watershed of the reservoir.

(aaa) "Preirrigation" means the application of water to the land for a crop before planting to assure adequate moisture for early plant growth.

(bbb) "Primary well" means a well for which a standby well is available.

(ccc) "Prior right" means a vested right, an appropriation right with earlier priority, or a permit with earlier priority than that of a subsequent appropriation right or permit.

(ddd) "Proven reserves" means extractable sand and gravel deposits for which good estimates of the quantity and quality have been made by various means, including core drilling.

(eee) "Recharge" means the natural infiltration of surface water or rainfall into an aquifer from its catchment area.

(fff) "Recharge credit" means the quantity of water that is stored in the basin storage area and that is available for subsequent appropriation for beneficial use by the operator of the aquifer storage and recovery system.

(ggg) "Recreation storage" means the storage and use of water within the reservoir for recreational use as defined in this regulation. Water stored for recreation use in a reservoir shall be considered to be an indirect use of water.

(hhh) "Recreational use" means a use of water in accordance with a water right that provides entertainment, enjoyment, relaxation, and fish and wildlife benefits.

(iii) "Rediversion of water" means releasing or withdrawing water that had been previously impounded behind a dam, levee, or similar type of structure, by use of a pump, outlet tube, headgate, or similar type of device, and the application of the water directly to beneficial use.

(jjj) "Register" means an integral or remote device that displays the quantity of water passing the water flowmeter sensor and is part of the water flowmeter.

(kkk) "Reservoir capacity" means the volume of water that can be stored below the lower of either of the following:

(1) The elevation of the principal spillway tube; or

(2) the lowest uncontrolled spillway in the reservoir.

(lll) "Reservoir having a total water volume of less than 15 acre-feet," as used in K.S.A. 82a-728 and amendments thereto, means a reservoir having a capacity of 15 acre-feet or less as measured at the principal spillway tube or the lowest uncontrolled spillway, whichever is lower.

(mmm) "Safe yield" means the long-term sustainable yield of the source of supply, including hydraulically connected surface water or groundwater.

(nnn) "Sand and gravel pit operation" means a project that meets the following conditions:

(1) Excavates overburden for mining sand or gravel, or both, exposing the underlying groundwater table to evaporation; and

(2) has a perimeter equal to or greater than its depth.

(ooo) "Source water" means water used for artificial recharge that meets the following conditions:

Is available for appropriation for beneficial use;

is above base-flow stage in the stream;

is not needed to satisfy minimum desirable stream-flow requirements; and

(4) will not degrade the ambient groundwater quality in the basin storage area.

(ppp) "Specialty crop" means a crop other than a normal Kansas field crop. This term shall include turf grass, trees, vegetables, ornamentals, and other similar crops.

(qqq) "Standby well" means a well that can withdraw water from the same source of supply as the primary well and that is used only when water is temporarily unavailable from the primary well or wells authorized to be used on the same place of use because of mechanical failure, maintenance, or power failure. A standby well may also be used for fire protection or a similar type of emergency.

(rrr) "Static water level" means the depth below land surface at which the top of the groundwater is found when not affected by recent pumping.

(sss)(1) "Stockwatering" means the watering of livestock and other uses of water directly related to either of the following:

(A) The operation of a feedlot with the capacity to confine 1,000 or more head of cattle; or

(B) any other confined livestock operation or dairy that would divert 15 or more acre-feet of water per calendar year.

(2) Stockwatering shall not include the irrigation of feed grains or other crops.

(3) For the purposes of this subsection, a group of feedlots or other confined feeding operations shall be considered to be one feedlot or confined feeding operation if both of these conditions are met:

There are common feeding or other physical facilities.

The group of facilities is under common management.

(ttt) "Straight pipe" means a straight length of pipe free of all internal obstructions, including size changes, valves, cooling coils, injection ports, sand or foreign material, and any other condition that would cause a disturbance of the internal velocity profile in the pipe. Internal obstructions shall not include properly designed, constructed, and installed straightening vanes and inspection ports.

(uuu) "Stream channel aquifer" means unconsolidated water-bearing deposits in river valleys, flood plains, and terraces that are separate and distinct from any other aquifer and capable of yielding water in sufficient quantities for beneficial use.

(vvv) "Surface water" means water in creeks, rivers, or other watercourses, and in reservoirs, lakes, and ponds.

(www) "Term permit" means a permit to appropriate water issued for a specified period of time. At the end of the specified time, or any authorized extension of it, the permit shall be automatically dismissed, and any priority it may have had shall be forfeited.

(xxx) "The production and return of saltwater in connection with the operation of oil and gas wells in accordance with the written approval granted therefor by the Kansas corporation commission pursuant to K.S.A. 55-901, and amendments thereto" means only that saltwater actually produced during the primary production of oil and gas wells and shall not include the following:

(1) Saltwater used in the drilling of an oil and gas well; and

(2) saltwater injected into an enhanced recovery injection well, unless that saltwater was produced in the primary production of the oil and gas well, separated from the oil and gas, and then subsequently reinjected.

(yyy) "Thermal exchange" means the use of water for climate control in a nondomestic building and in a manner that is essentially nonconsumptive to the source of supply.

(zzz) "Totalizer" means the mechanical or electronic portion of the register that displays the total quantity of water that has passed the water flowmeter sensor.

(aaaa) "Unconfined Dakota aquifer system" means that portion of the Dakota aquifer system not overlain by Graneros shale.

(bbbb) "Unconsolidated regional aquifer" means a body of mostly unconsolidated and heterogeneous water-bearing deposits that are hydraulically and geologically contiguous, and are capable of yielding water in sufficient quantities for beneficial use.

(cccc) "Waste of water" means any act or omission that causes any of the following:

(1) The diversion or withdrawal of water from a source of supply that is not used or reapplied to a beneficial use on or in connection with the place of use authorized by a vested right, an appropriation right, or an approval of application for a permit to appropriate water for beneficial use;

(2) the unreasonable deterioration of the quality of water in any source of supply, thereby causing impairment of a person's right to the use of water;

(3) the escaping and draining of water intended for irrigation use from the authorized place of use; or

(4) the application of water to an authorized beneficial use in excess of the needs for this use.

(dddd) "Waterpower use" means the use of falling water for hydroelectric or hydromechanical power.

(eeee) "Water balance" means the method of determining the amount of water in storage in a basin storage area by accounting for inflow to, outflow from, and changes in storage in that basin storage area.

(ffff) "Water flowmeter" means the combination of a flow-sensing device, measuring chamber, integral or remote display device or register, and any connecting parts

required to make a working assemblage to measure, record, and allow determination of flow rate and total quantity of water flowing past the water flowmeter sensor.

(gggg) "Water storage device" means a reservoir, elevated water tank, pressurized water tank, including a bladder tank, or other container into which water is pumped and stored before beneficial use.

(hhhh) "Water use correspondent" means a person designated in writing, on a form prescribed by the chief engineer, by one of the owners of a water right to file the water use reports required by K.S.A. 82a-732 and amendments thereto, on behalf of the owner or owners of that water right. (Authorized by and implementing K.S.A. 82a-706a; modified, L. 1978, ch. 460, May 1, 1978; amended May 1, 1980; amended May 1, 1981; amended May 1, 1983; amended May 1, 1986; amended Dec. 3, 1990; amended May 31, 1994; amended Sept. 22, 2000.)

K.A.R. 5-1-2. Standby well. In order for a well to qualify as a standby well:

(a) The well shall be maintained in operable condition and be capable of being hooked to a power source within a reasonable amount of time to allow the well to function effectively as a standby well.

(b) Both the primary well or wells and the standby well or wells shall be required to be metered by order of the chief engineer or as a condition of the water right or permit.

(c) The standby well shall be located close enough to the primary well so that both wells withdraw water from the same local source of supply.

(d) The standby well shall be authorized to divert the same rate and quantity as the primary well or wells. A limitation clause shall be placed on any water right or permit authorizing a standby well or wells limiting the standby well to no more than the rate and quantity authorized for the primary well or wells. With the limitation clause or clauses in effect, the standby well or wells shall not be counted in any safe yield, allowable appropriation, depletion or similar type of analysis. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706; effective May 31, 1994.)

K.A.R. 5-1-3. Permitting requirements of the Kansas water appropriation act. An individual engaged in the drilling of water well test holes, seismic test holes, stratigraphic test holes, observation wells, and water quality sampling wells, shall not be required to have an approval of application pursuant to the Kansas water appropriation act if water will not be diverted for beneficial use. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a -701(f), 82a-703, 82a-705, and K.S.A. 1999 Supp. 82a-711; effective Sept. 22, 2000.)

K.A.R. 5-1-4. Water flowmeter specifications. Each water flowmeter required by the chief engineer, or required pursuant to a regulation adopted by the chief engineer, on or after the effective date of this regulation shall meet the following minimum requirements:

(a)(1) The water flowmeter shall be certified by the manufacturer to register neither less than 98 percent nor more than 102 percent of the actual volume of water passing the water flowmeter when installed according to the manufacturer's instructions. This requirement shall be

met throughout the water flowmeter's normal operating range without further adjustment or calibration.

(2) The manufacturer shall certify to the chief engineer that it has an effective quality assurance program, including wet testing a random sample of production line water flowmeters with water flowmeter test equipment. The minimum number of samples to be tested shall be determined using a confidence interval of 90 percent, an expected compliance of 95 percent, and an acceptable error of two percent. The minimum number of samples of each model that shall be tested shall be calculated by multiplying 1,300 times the annual production of that model of water flowmeter divided by Q. Q equals four times the annual production of that water flowmeter plus 1,300.

(3) The manufacturer shall certify that the water flowmeter test equipment described in paragraph (a)(2) has been tested annually and found accurate by standards traceable to the national institute of standards and technology (NIST). Documentation of the testing required in paragraphs (a)(1) and (2) shall be maintained by the manufacturer for a period of at least five years and shall be made available to the chief engineer upon request during normal business hours.

(b) The water flowmeter shall be designed and constructed so that it will meet the following criteria:

(1) Maintain the accuracy required by the chief engineer in K.A.R. 5-1-4(a) and K.A.R. 5-1-9(a);

(2) be protected by the following:

(A) A seal installed by the manufacturer or an authorized representative of the manufacturer; or

(B) a way that makes it impossible to alter the totalizer reading without breaking the seal or obtaining the authorization of the manufacturer, an authorized representative of the manufacturer, or the chief engineer.

(3) clearly indicate the direction of water flow;

(4) clearly indicate the serial number of the water flowmeter;

(5) have a weatherproof register that is sealed from all water sources;

(6) have a register that is readable at all times, whether the system is operating or not;

(7) be able to be sealed by an authorized representative of the chief engineer to prevent unauthorized manipulation of, tampering with, or removal of the water flowmeter;

(8) be equipped with a manufacturer-approved measuring chamber through which all water flows. Except for positive displacement water flowmeters and multijet water flowmeters, flow-straightening vanes shall be installed at the upstream throat of the water flowmeter chamber. The flow-straightening vanes shall meet either of the following criteria:

(A) Be designed and installed by the manufacturer, or an authorized representative of the manufacturer; or

(B) consist of at least three vanes that meet the following conditions:

(i) Are longer, when placed parallel to the length of the pipe, than the inside diameter of the pipe;

(ii) are equally spaced radially on the inner periphery of the pipe; and

(iii) are wider in diametrical distance than one-fourth of the inside diameter of the pipe;

(9) be equipped with an inspection port if the straightening vanes are not designed, constructed, and installed by the manufacturer or an authorized representative of the manufacturer. The port shall be of sufficient size and placement to allow determination of the following:

(A) The proper installation of the flow-straightening vanes; and

(B) the inside diameter of the pipe in which the water flowmeter sensor is installed;

(10) remain operable without need for recalibration to maintain accuracy throughout the operating life of the water flowmeter; and

(11) have a totalizer that meets the following criteria:

(A) Is continuously updated to read directly only in acre-feet, acre-inches, or gallons;

(B) has sufficient capacity, without cycling past zero more than once each year, to record the quantity of water diverted in any one calendar year;

(C) reads in units small enough to discriminate the annual water use to within the nearest 0.1 percent of the total annual permitted quantity of water;

(D) has a dial or counter that can be timed with a stopwatch over not more than a 10-minute period to

accurately determine the rate of flow under normal operating conditions; and

(E) has a nonvolatile memory.

(c) Each water flowmeter that is required to be installed by the chief engineer, or that was required to be installed as a condition of either an approval of application or an order of the chief engineer, or pursuant to a regulation adopted by the chief engineer before the effective date of this regulation, shall meet the following minimum specifications:

(1) Each water flowmeter shall be of the proper size, pressure rating, and style, and shall have a normal operating range sufficient to accurately measure the water flow passing the water flowmeter under normal operating conditions.

(2) Each water flowmeter shall meet the accuracy requirements of K.A.R. 5-1-9(a). If the water flowmeter does not meet the accuracy requirements of K.A.R. 5-1-9(a), then the water flowmeter shall meet either of the following criteria:

(A) Be repaired so that it can meet the accuracy requirements of K.A.R. 5-1-9(a); or

(B) be replaced with a water flowmeter complying with all of the requirements of K.A.R. 5-1-4 and installed in a manner that meets the requirements of K.A.R. 5-1-6. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-1-5. Variances from water flowmeter specifications. (a) A variance from the chief engineer's water flowmeter specifications may be granted by the chief

engineer if the water right owner furnishes detailed specifications of a proposed water flowmeter and demonstrates to the chief engineer all the following:

(1) A water flowmeter meeting the specifications of K.A.R. 5-1-4 will not satisfactorily serve the water user's needs.

(2) The proposed water flowmeter will meet the accuracy requirements of K.A.R. 5-1-4(a) and (b).

(3) The proposed water flowmeter will provide a reliable and accurate water use record for that point of diversion.

(b) Variances shall be granted only on a site-by-site, case-by-case basis. No general variances shall be granted for any brand or model of water flowmeter, except as set forth in subsection (c).

(c) A limited variance shall be granted by the chief engineer for a period of up to three years to allow that specific brand and model of a water flowmeter to be tested in the field and to serve as a water flowmeter required by the chief engineer if all of the following conditions are met:

(1) The manufacturer demonstrates to the chief engineer that a particular model and brand of water flowmeter utilizes new technology, does not meet one or more of the requirements of K.A.R. 5-1-4, and is likely to be as reliable, or more reliable, than water flowmeters currently meeting all of the requirements of K.A.R. 5-1-4.

(2) The manufacturer agrees to install not more than 50, nor less than 10, water flowmeters to test the new technology.

(3) The manufacturer agrees to collect data for at least one year that is sufficient to allow the chief engineer to determine whether that brand and model of water flowmeter meets the reliability and accuracy specifications of K.A.R. 5-1-4. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-1-6. Water flowmeter installation specifications. (a) Each water flowmeter required by the chief engineer to be installed or required pursuant to a regulation adopted by the chief engineer, on or after the effective date of these regulations shall meet the following minimum water flowmeter installation specifications:

(1) Each water flowmeter shall be installed in a manner that meets the following criteria:

(A) Meets or exceeds the instructions of the manufacturer; and

(B) except for a multijet and a positive displacement water flowmeter, is installed so that there are at least five pipe diameters of straight pipe upstream and at least two pipe diameters of straight pipe downstream of the sensor portion of the water flowmeter, regardless of the manufacturer's installation specifications.

(2) Each water flowmeter shall be sized and installed so that full pipe flow will be maintained through the water flowmeter and so that water velocity in the measuring chamber will be within the normal operating range of the water flowmeter at all times while water is being diverted.

(3) If a water flowmeter is located downstream of a water storage device, there shall be at least seven diameters of straight pipe upstream of the water storage device

where a water flowmeter may be installed for a field test by the chief engineer.

(4) Each water flowmeter shall be installed at a location that will measure all water diverted from the source of supply.

(b) Each water flowmeter that is required by the chief engineer to be installed, or that was required to be installed as a condition of either an approval of application or an order of the chief engineer, or pursuant to a regulation adopted by the chief engineer, before the effective date of these regulations, shall meet the following minimum installation specifications:

(1) Each water flowmeter shall be installed in a manner that meets or exceeds the instructions of the manufacturer and, except for a multijet and a positive displacement water flowmeter, shall be installed so that there are at least five pipe diameters of straight pipe upstream and at least two pipe diameters of straight pipe downstream of the sensor portion of the water flowmeter, regardless of the manufacturer's installation specifications.

(2) Each water flowmeter shall be sized and installed so that full pipe flow will be maintained through the water flowmeter and so that water velocity in the measuring chamber will be within the normal operating range of the water flowmeter at all times while the water is being diverted.

(3) Each water flowmeter shall be installed at a location that will measure all water diverted from the source of supply. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-1-7. Requirement to install a water flowmeter or other suitable water-measuring device. (a) All nondomestic, nontemporary wells and pump sites operated under the authority of an approval of application issued on or after the effective date of this regulation shall be equipped with a water flowmeter that meets or exceeds the specifications of the chief engineer effective at the time the application is approved by the chief engineer.

(b)(1) All nondomestic, nontemporary gravity diversions of water, including irrigation ditches, operating under the authority of an approval of application issued on or after the effective date of this regulation shall be equipped with a continuous recording gauge, or other suitable water-measuring device located at or near the headgate. Before installation, the water right owner shall submit plans and specifications for the proposed gauge, or other suitable water-measuring device, to the chief engineer and shall receive approval in writing from the chief engineer before installing the gauge or other suitable water-measuring device.

(2) The gauge or other suitable water-measuring device shall meet the following criteria:

(A) Register not less than 94% and not more than 106% of the actual volume of water passing the device under normal operating conditions when compared to a field test made by, or approved by, the chief engineer;

(B) be installed in accordance with the installation requirements of the chief engineer; and

(C) be maintained in a satisfactory operating condition any time water can reasonably be expected to be diverted.

(c) An approval of a nondomestic application for change in place of use, the point of diversion, or the use made of the water, or any combination of these, shall require the owner of the well or pump site to install a water flowmeter on all points of diversion authorized by the water right or approval of application, unless any of the following conditions is met:

(1) The applicant demonstrates to the chief engineer that the application to change the place of use meets the requirements of K.A.R. 5-5-11(e).

(2) The applicant demonstrates to the chief engineer both of the following:

(A) Installation of a water flowmeter meeting these specifications is not physically feasible.

(B) The applicant agrees to implement a reasonable, objective alternative of measuring the quantity of water diverted that is acceptable to the chief engineer.

(3) The water is being diverted from multiple points of diversion authorized by one water right that does not limit the maximum annual quantity and maximum rate of diversion by point of diversion, and all of the water flows to a common point where a water flowmeter meeting the requirements of K.A.R. 5-1-4 and K.A.R. 5-1-6 measures all of the water pumped from all of the points of diversion authorized by that water right.

(4) An application for change in point of diversion only is filed to change the point of diversion of only one

well, when more than one well is authorized by the approval of application or water right that authorizes the well for which a change in point of diversion is sought. In this case, only the well that is being relocated shall be required to have a water flowmeter.

(d) Except as set forth in subsection (c), if an approval of an application for change requires the installation of a water flowmeter, the requirement to install a water flowmeter shall also be placed on all other water rights and approvals authorizing diversion of water from the same point of diversion.

(e) If any water right or approval of application has a condition requiring development, adoption, and implementation of a water conservation plan pursuant to K.S.A. 82a-733 and amendments thereto, a water flowmeter or suitable water-measuring device shall be installed on each authorized point of diversion in compliance with these regulations.

(f) The owner of a water right, including a domestic water right, or an approval of application shall also be required by the chief engineer to install a water flowmeter or other suitable water-measurement device that complies with these regulations on each authorized point of diversion if it is necessary for the chief engineer to effectively administer water rights to prevent impairment, to protect minimum desirable stream flows, to conserve water, or to otherwise carry out the duties of the chief engineer as set forth in the Kansas water appropriation act, K.S.A. 82a-701 et seq., and amendments thereto.

(g) Except as set forth in subsection (c), if a water flowmeter is required by the chief engineer, each point of diversion authorized by the approval of application or

water right shall be required to have a separate meter. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-1-8. Water flowmeter maintenance. If a water right owner is required by the chief engineer to install a water flowmeter, the water right owner shall maintain the water flowmeter in compliance, as defined by K.A.R. 5-1-1, whenever diversion of water can reasonably be expected to occur. If at any time the required water flowmeter fails to function properly, the owner shall promptly initiate action to repair or replace the meter, or to correct any problems with the installation. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-1-9. Criteria to determine when a water flowmeter is out of compliance. A water flowmeter shall be considered to be out of compliance if any of the following criteria is met:

(a) The water flowmeter registers less than 94 percent or more than 106 percent of the actual volume of flow passing the water flowmeter. If necessary, this determination may be made by a field test conducted by, or approved by, the chief engineer.

(b) The seal placed on the totalizer by the manufacturer or the manufacturer's authorized representative has been broken, or the totalizer value has been reset or altered without the authorization of the manufacturer, an authorized representative of the manufacturer, or the chief engineer.

(c) A seal placed on the water flowmeter or totalizer by the chief engineer has been broken.

(d) The water flowmeter register is not clearly visible or is unreadable for any reason.

(e) There is not full pipe flow through the water flowmeter.

(f) Flow-straightening vanes have not been properly designed, manufactured, and installed.

(g) The water flowmeter is not calibrated for the nominal size of the pipe in which it is installed.

(h) The water flowmeter is not installed in accordance with the manufacturer's installation specifications. However, five diameters of straight pipe above the water flowmeter sensor and two diameters below the water flowmeter sensor shall be the minimum spacing, regardless of the manufacturer's installation specifications. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-1-10. Duties of water right owner when a water flowmeter is out of compliance. (a) A water right owner, or the water right owner's authorized designee, shall promptly notify the chief engineer if any water flowmeter required by the chief engineer is out of compliance.

(b) Within 30 days after the date on which the out-of-compliance water flowmeter has been repaired or replaced, the water right owner or the water right owner's authorized designee shall notify the chief engineer in writing of the following information:

(1) The date the water flowmeter became out of compliance;

(2) the water flowmeter reading at the time the water flowmeter became out of compliance;

(3) if the water flowmeter was replaced, the following information:

(A) The brand, model, size, and serial number of the new water flowmeter;

(B) the units in which the new water flowmeter reads;

(C) the reading of the new water flowmeter at the time of installation; and

(D) the location of the new water flowmeter on the diversion works or delivery system;

(4) if the water flowmeter was repaired, the water flowmeter reading immediately before the repair and the reading of the water flowmeter at the time it was reinstalled or the repair was completed on site;

(5) the date the repair or replacement was completed; and

(6) the amount of water diverted while the water flowmeter was out of compliance.

(c) If the water right owner does not maintain a record of diversions of water that is sufficient to reasonably estimate the quantity of water diverted while the water flowmeter was out of compliance, it shall be assumed, for the sole purposes of enforcement of the terms, conditions, and limitations of the approval of application or water right, and priority administration of water rights among water users, that the diversion works were operated continuously at the tested rate of diversion during the

entire period the water flowmeter was out of compliance. If the rate of diversion has not been tested by the chief engineer, then it shall be assumed that the diversion works were operated continuously at the authorized rate of diversion during the entire time the water flowmeter was out of compliance. The assumption set forth in this subsection shall not apply to the determination of the annual quantity of water diverted for the purpose of perfecting a water right.

(d) If the water right owner is required by the chief engineer to repair or replace an inoperable water flowmeter, it shall be the duty of the water right owner to ensure that the repaired or replaced water flowmeter is in compliance with K.A.R. 5-1-4 and K.A.R. 5-1-6. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-1-11. Water flowmeter testing by a nonagency person. If a water right owner desires to have a water flowmeter flow rate test done by a nonagency person for any reason, a person may be approved by the chief engineer to perform a water flowmeter flow rate test if the person demonstrates to the chief engineer both of the following:

(a) The person has the training, skills, and experience necessary to properly conduct the test.

(b) The person has the appropriate water flowmeter to do the test, and the water flowmeter has been tested for accuracy with water flowmeter test equipment that has been found to be accurate using standards traceable to the national institute of standards and technology (NIST). The equipment shall have been tested and found to be accurate within 12 months of performing the water flowmeter test.

(Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-1-12. List of water flowmeters certified by the manufacturer to meet the specifications of the chief engineer. (a) A list of all makes and models of water flowmeters that have been certified by the water flowmeter manufacturer to meet the specifications of the chief engineer shall be maintained by the chief engineer. This list shall be made available by the chief engineer to the public upon request.

(b) To have a water flowmeter placed on the list, the manufacturer shall supply to the chief engineer the following information for each water flowmeter model:

(1) The water flowmeter manufacturer's name, address, contact person's name, and telephone number;

(2) the water flowmeter model name or number;

(3) proof that a random sample of water flowmeters of each model has been tested in accordance with the requirements of K.A.R. 5-1-4(a);

(4) the last date that the water flowmeter test equipment was tested and found to be accurate by standards traceable to the national institute of standards and technology (NIST);

(5) verification that the water flowmeter is designed and constructed so that accuracy will be maintained over the life of the water flowmeter;

(6) verification that the water flowmeter serial number and direction of flow are clearly indicated on the water flowmeter;

(7) verification that the register is weatherproof;

(8) verification that the totalizer will read only in acre-feet, acre-inches, or gallons;

(9) the number of active digits in the totalizer;

(10) verification that the memory is nonvolatile;

(11) verification that the totalizer cannot be reset without breaking the manufacturer's seal or obtaining the authorization of the manufacturer, an authorized representative of the manufacturer, or the chief engineer;

(12) verification that the water flowmeter and register are constructed in such a manner that they can be sealed by the chief engineer;

(13) a description of the measuring chamber provided for each water flowmeter model;

(14) specifications of the flow-straightening vanes installed in the measuring chamber;

(15) the spacing recommendations for each water flowmeter model in terms of pipe diameters of straight pipe required upstream and downstream of the water flowmeter sensor; and

(16) the normal operating range of the water flowmeter.

(c) A brand or model of a water flowmeter shall be removed from the list of water flowmeters specified in subsection (a) of this regulation if it has been demonstrated to the chief engineer that the brand or model of water flowmeter does not reliably and consistently meet the accuracy standards of K.A.R. 5-1-9(a). (Authorized by

K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-2-1. Rejected by Legislature.

K.A.R. 5-2-2. Rejected by Legislature.

K.A.R. 5-2-3. Battery of wells. Except as set forth in subsection (c), if a permit to appropriate water did not authorize a battery of wells, as defined in K.A.R. 5-1-1, before the effective date of this regulation, an application for change filed pursuant to K.S.A. 82a-708b, and amendments thereto, to add one or more wells to the authorized well to create a battery of wells shall not be approved unless all of the following criteria in either subsection (a) or (b) are met at the time that the application for change is filed:

(a)(1) The time to construct the diversion works has not expired. (2) The proposed battery will meet the definition of a battery of wells as defined in K.A.R. 5-1-1.

(b)(1) The time to construct the diversion works has expired. (2) A new application to appropriate water filed to appropriate water at the geocenter of the proposed battery of wells would meet the safe yield, allowable appropriation, or similar type of regulation, for a well filed at that location. (3) The proposed battery of wells meets the definition of a battery of wells as defined in K.A.R. 5-1-1.

(c) Subsections (a) and (b) shall not apply to an application to change the point of diversion filed to add one or more wells to the authorized well to create a battery of wells if the proposed battery of wells is located within the boundary of a groundwater management district for which the chief engineer has adopted a specific regulation applicable to batteries of wells within that district.

(Authorized by and implementing K.S.A. 82a-706a; effective Sept. 22, 2000.)

K.A.R. 5-3-1. Application acceptable for filing. (a) To be acceptable for filing, an application for permit to appropriate water for beneficial use shall be accompanied by the statutory application fee (except applications for domestic use) shall show the name and mailing address of the applicant, shall be signed by the applicant or an authorized representative, shall show the source of water supply, shall show the proposed place of use and either shall show a description of the location of the proposed point of diversion or shall request a 60-day period of time in which to establish the location of the proposed point of diversion within a limited area.

(b) Once an application is received in the office of the chief engineer and assigned a number, the maximum quantity of water per calendar year and the maximum rate of diversion shall not be increased. (Authorized by K.S.A. 82a-706a, 82a-709; modified, L. 1978, ch. 460, May 1, 1978; amended May 1, 1980.)

K.A.R. 5-3-1a. Application for a basin term permit. An application for a basin term permit shall be filed on a form prescribed by the chief engineer. The term requested shall not exceed one year. A basin term permit may be extended in one-year increments if all of the following conditions are met:

(a) The request for extension is filed before the end of the current term in a manner acceptable to the chief engineer.

(b) The applicant has complied with the terms, conditions, and limitations of the basin term permit during the previous calendar year.

(c) Granting the requested extension will not cause impairment of each approval of application and water right with an earlier priority.

(d) The applicant shows good cause why the extension should be granted.

The total time authorized by a basin term permit shall not exceed five calendar years. Basin term permits shall not be transferable. At the end of the specified term, the permit shall be dismissed, and any priority it may have had shall be forfeited. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-3-2. Priorities. (a) Upon receipt in the office of the chief engineer of an acceptable application for permit to appropriate water for beneficial use, accompanied by the statutory application fee, a stamp showing the date and time of receipt shall be placed on the application form. The date and time of receipt of the application for any use, other than domestic, shall establish the priority of whatever appropriation right that may be subsequently perfected pursuant to the application;

(b) The date and time of the receipt of an application for permit to appropriate water for domestic use or the date of the first use of water for such purpose, whichever is earlier, shall establish the priority of the appropriation right for domestic use. When the first use of water is earlier in time than the filing date of an application, the applicant shall furnish affidavits from disinterested parties to substantiate the date that water was first used

from the appropriate water supply for domestic purposes. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-3-3. Storage of water for domestic use. Any person entitled to use water for beneficial purposes may collect and store the same so long as such collection, storage, use and times of use thereafter are consistent with reasonable storage and conservation practices. A reasonable quantity of water stored for domestic use shall be considered to be that quantity sufficient to satisfy the domestic use for the current year and two succeeding years. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-3-4. Application contents. (a) Each application for permit to appropriate water for beneficial use shall contain all the information requested for the proposed uses as set forth in the prescribed application form and such other information as may be required for a proper understanding of the proposed appropriation.

(b) Each application shall be accompanied by an aerial photograph or a detailed plat preferably to a scale of one (1) inch equals one thousand three hundred and twenty (1,320) feet, or a U. S. geological survey topographic map, scale 1:24,000. Information that shall be plotted on the plat, photograph, or topographic map is as follows:

(1) The section corners.

(2) The center of the section, identified by the section number, township and range.

(3) The location of the point of diversion – well location, stream bank pump site, dam location or location

of other works for diversion of water – indicated by an appropriate symbol.

(4) The location of the place of use identified by crosshatching or by some other appropriate method.

(5) The location of all other water wells of every kind within one-half (1/2) mile of the well(s) covered by the proposed appropriation, each of which shall be identified as to its use and the name and mailing address of the owner, if the proposed appropriation is for use of groundwater.

(6) The name and mailing address of the owner(s) of each tract of land adjacent to the stream for a distance of one-half (1/2) mile upstream and one-half (1/2) mile downstream from the property lines of the land owned or controlled by the applicant, if the proposed appropriation is for the use of surface water.

(7) The locations of proposed or existing dams, dikes, reservoirs, canals, pipelines, power houses and other structures for the purpose of storing, conveying or using water.

(8) A north arrow and scale.

The information shown on the photograph or plat shall be legible. Black line prints may be submitted in lieu of the original drawing if a plat is submitted.

(c) Separate applications shall be filed for surface water and groundwater.

(d) If the source of supply is groundwater, a separate application shall be filed for each proposed well or battery of wells, except that up to four (4) wells within a circle

with a quarter (1/4) mile radius in the same local source of supply which do not exceed a maximum diversion rate of twenty (20) gallons per minute per well and which are operated by means of submersible pumps may be included in a single application. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-709; modified, L. 1978, ch. 460, May 1, 1978; amended May 1, 1980; amended May 1, 1981.)

K.A.R. 5-3-4a. Hearing prior to approval of application. A hearing may be held before the chief engineer, or a person designated by the chief engineer, on an application to appropriate water for beneficial use prior to approval, when the chief engineer finds it to be in the public interest to hold a hearing, or a hearing has been requested by a person who shows to the satisfaction of the chief engineer that approval of the application may cause impairment of senior water rights or permits. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-711; effective May 1, 1980; amended May 31, 1994.)

K.A.R. 5-3-4b. Deadlines for return of documents. (a) If the chief engineer allows a person a specific number of days to return or submit a document or other information, the time period shall be computed as prescribed in K.S.A. 60-206(a) and (e), and amendments thereto.

(b) If a person is given until a specific date to return or submit a document or other information, the document or information shall be deemed to be timely filed if it is received in the office of the chief engineer no later than the third working day following the specified date. Working days shall be all days except Saturdays, Sundays, and legal holidays designated by the United States congress,

the Kansas legislature, or the governor of Kansas. Half holidays shall be counted as working days.

(c) Any document that is postmarked by the United States postal service with a legible date on or before the deadline set by the division for returning the document shall be accepted by the division as being timely filed, regardless of when it is received. In the case of United States registered mail, the date of registration shall be deemed to be the postmark date. The term "United States postal service," as used in this subsection, shall include a private delivery service available to the general public that routinely records, in the regular course of business, the date the item is given to the service for delivery. The date the item is given to the service for delivery shall be deemed to be the postmark date. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-710; effective May 1, 1980; amended Sept. 22, 2000.)

K.A.R. 5-3-4c. Retaining new applications. (a) A new application to appropriate water for beneficial use shall be held by the chief engineer in accordance with the terms of subsection (b) if it meets both of the following conditions:

(1) The application is in proper form and has been completely processed, but cannot be approved because it does not currently comply with one or more statutory or regulatory requirements, including spacing, safe yield, or allowable appropriation regulations.

(2) There is good cause to believe that, if the application were held for a reasonable period of time, it may be approvable in the future because of actions currently pending on other permits and water rights in the area,

including issuance of certificates, dismissals of applications, and declarations of abandonment.

(b) Upon demonstration by the applicant to the chief engineer that the application apparently could be approved within a reasonable time, not to exceed 365 days from the date the request to retain the application was received by the chief engineer, if the pending actions take place, the applicant's pending new application may be held by the chief engineer for a period not to exceed 365 days.

(c) If the application still cannot be approved at the end of this time, the application shall be dismissed by the chief engineer and the priority of the application forfeited. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-705, K.S.A. 82a-710, and K.S.A. 82a-721; effective Sept. 22, 2000.)

K.A.R. 5-3-4d. Stratigraphic log requirements. (a) Except as set forth in subsection (b), each applicant who files either of the following applications shall submit to the chief engineer a stratigraphic log for a test hole located within 300 feet of the proposed new or replacement well:

(1) A new application to appropriate groundwater, except for domestic use, a temporary permit, or a term permit for fewer than five years; or

(2) an application to change the point of diversion to relocate a well.

This stratigraphic log shall contain geologic and any other information sufficient to allow the chief engineer to understand the lithology and to classify the groundwater source formation or formations from which the proposed well will be withdrawing water.

(b)(1) If an application is filed for a new well, the stratigraphic log shall not be required if the chief engineer has sufficient information to understand the lithology and determine the groundwater source formation or formations from which the proposed well will be withdrawing water.

(2) If an application is filed for a change in point of diversion, the stratigraphic log shall not be required if the chief engineer has sufficient information to understand the lithology and determine the groundwater source formation or formations from which the original well withdrew water and the replacement well will withdraw water.

(c) Each applicant to construct a new well or to change the point of diversion to a newly constructed well shall submit to the chief engineer a copy of the stratigraphic log of the completed well as required by the Kansas department of health and environment under the authority of K.S.A. 82a-1212 and amendments thereto. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-709(i), K.S.A. 82a-710; effective Sept. 22, 2000.)

K.A.R. 5-3-4e. Groundwater source formation codes. The Kansas department of agriculture, division of water resources' document titled "groundwater source formation codes," dated November 3, 1999, is hereby adopted by reference for the sole purpose of determining the groundwater source formation codes used by the chief engineer in administering the provisions of the Kansas water appropriation act. The groundwater source formation codes used by the chief engineer shall be the codes set forth in the document described above. (Authorized by

K.S.A. 82a-706a; implementing K.S.A. 82a-709; effective Sept. 22, 2000.)

K.A.R. 5-3-5. Approval of application. The approval of an application on the prescribed form shall constitute a permit to proceed with the construction of authorized diversion works and the diversion and use of water.

The applicant shall be notified of the approval of the application by transmitting to him or her the original document setting forth the terms, conditions, and limitations of the permit which has been duly dated and signed by the chief engineer or his or her authorized representative. A copy of the approval of application and permit to proceed shall be maintained in the office of the chief engineer or the appropriate field office. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-3-5a. Authorization for the use of water for emergency purposes. The chief engineer, or a person designated by the chief engineer, may authorize the use of water for emergency purposes. The emergency approval shall be subject to the terms, conditions and limitations specified by the chief engineer and may be granted when determined to be in the public interest or when needed to protect the quality of a water supply, to provide fire protection, or to provide an alternate point of diversion or source of supply when the principal source of supply or point of diversion is unavailable due to conditions beyond the control of the applicant. (Authorized by K.S.A. 82a-706a, 82a-711; effective May 1, 1980.)

K.A.R. 5-3-5b. Approval of application for water for the development of underground storage in mineralized formations. In any case where it is not

technologically and economically feasible to utilize poorer quality water for the development of underground storage in mineralized formations and fresh water must be used, the chief engineer shall require the construction of surface brine storage facilities to the extent economically and technologically feasible in an amount not to exceed forty percent (40%) of underground storage capacity of the applicant. This regulation does not exempt a person from complying with the requirements of other state and federal agencies relative to the construction of surface brine storage facilities. (Authorized by K.S.A. 82a-706a, 82a-707 (d); effective May 1, 1980.)

K.A.R. 5-3-5c. Check valves. All diversion works into which any type of chemical or other foreign substance will be injected into the water pumped from the diversion works shall be equipped with an in-line, automatic, quick-closing check valve capable of preventing pollution of the source of the water supply. The type of valve installed shall meet specifications adopted by the chief engineer and shall be maintained in an operating condition satisfactory to the chief engineer. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-712; effective May 1, 1980; amended May 1, 1981.)

K.A.R. 5-3-5d. Persons required to install a water level measurement tube. Every well with an authorized maximum rate of diversion of 100 or more gallons per minute drilled after the effective date of this regulation, except those wells authorized under a temporary permit, a domestic right, or a term permit for five or fewer years, shall have a tube installed in accordance with specifications adopted by the chief engineer. This tube shall be suitable for making water level measurements and shall be maintained in a satisfactory condition. (Authorized by

K.S.A. 82a-706a; implementing K.S.A. 82a-706c, effective May 1, 1980; amended Sept. 22, 2000.)

K.A.R. 5-3-5e. Meters and other water-measuring devices; reporting readings; maintenance, and replacement. (a) For the purpose of this regulation, "meter" shall mean a water flowmeter or other water-measuring device.

(b) Whenever the installation of a meter is required by the chief engineer as a condition of a water right or permit, by written order of the chief engineer, or by requirement of a groundwater management district, the water right owner shall report all information required on the form prescribed by the chief engineer pursuant to K.S.A. 82a-732, and amendments thereto, including the following:

(1) The beginning and ending readings of the meter each calendar year;

(2) the units in which the meter registers; and

(3) the quantity of water diverted during the calendar year in the same units in which the meter registers.

(c) Whenever a totalizing hour meter has been required by the chief engineer or a groundwater management district, the water right owner shall report all information required on the form prescribed by the chief engineer pursuant to K.S.A. 82a-732, and amendments thereto, including the following:

(1) The beginning and ending readings of the meter each calendar year;

(2) the units in which the meter registers; and

(3) the rate of diversion at which water is pumped in gallons per minute. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-732; effective May 31, 1994; amended Sept. 22, 2000.)

K.A.R. 5-3-5g. Designation of a water use correspondent. If the owner or owners of an approval of application or a water right desire to delegate the authority to receive and submit the annual water use reports as prescribed by K.S.A. 82a-732, and amendments thereto, to another person, an owner of the approval of application or the water right shall sign and submit a form prescribed by the chief engineer designating the person responsible to receive and submit the required annual water use report. However, the water right owner or owners shall remain, in all cases, the person or persons legally responsible for filing the water use reports required by K.S.A. 82a-732, and amendments thereto. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-732; effective Sept. 22, 2000.)

K.A.R. 5-3-5h. Water conservation plans. Each water conservation plan shall be submitted on a form prescribed by the chief engineer. The plan shall also contain the name, address, and telephone number of the designer of the water conservation plan. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-733; effective Sept. 22, 2000.)

K.A.R. 5-3-5i. Time limit to implement a water conservation plan. (a) The time to fully implement the water conservation plan shall be limited by the chief engineer to a reasonable specific date, which may be extended for good cause shown by the applicant.

(b) A municipal or industrial water user shall be given at least one full calendar year after the conservation

plan is approved by the chief engineer to fully implement the water conservation plan.

(c) A user of water for irrigation shall be given at least one full growing season after the conservation plan is approved by the chief engineer to fully implement the approved water conservation plan. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-733; effective Sept. 22, 2000.)

K.A.R. 5-3-5j. Maintenance of a water conservation plan. Once implemented, the applicant shall continue to satisfactorily maintain each component of the water conservation plan. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-733; effective Sept. 22, 2000.)

K.A.R. 5-3-5k. Review of a water conservation plan. The right to review the water conservation plan to determine if it is consistent with current guidelines adopted and maintained pursuant to K.S.A. 74-2608, and amendments thereto, shall be reserved by the chief engineer. If the review determines that the water conservation plan is materially different from those guidelines, then the owner of the water right or approval of application may be ordered by the chief engineer to amend the water conservation plan to make it consistent with the current guidelines for conservation plans and practices adopted and maintained pursuant to K.S.A. 74-2608, and amendments thereto. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-733; effective Sept. 22, 2000.)

K.A.R. 5-3-5l. Changes in a water conservation plan. If a person required to implement a water conservation plan desires to make a material change in the plan, that person shall submit a request to make the change to the chief engineer on a form prescribed by the chief

engineer. Any material change in an approved water conservation plan shall require the prior written approval of the chief engineer. Any proposed change in a water conservation plan shall be subject to the same type of review as that required for the original water conservation plan. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-733; effective Sept. 22, 2000.)

K.A.R. 5-3-5m. Limited power of attorney. If all of the owners of an approval of application or water right desire to authorize any other person to take any type, or types, of official action on behalf of the approval of application or water right, all of the owners of the approval of application or water right shall meet the following requirements:

(a) A limited power of attorney shall be submitted to the chief engineer.

(b) The limited power of attorney shall be signed and acknowledged by all of the owners of the approval of application or water right and filed pursuant to the provisions of K.S.A. 58-601, and amendments thereto. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706a and K.S.A. 82a-701 et seq.; effective Sept. 22, 2000.)

K.A.R. 5-3-5n. Authorized place of use. (a) Except as set forth in subsection (b), each approval of application, or an approval of an application for change filed in accordance with K.S.A. 82a-708b, and amendments thereto, shall describe the authorized place of use as either of the following:

(1) Land not authorized for beneficial use of water by any other water right or approval of application; or

(2) exactly the same land authorized for beneficial use of water by one or more prior approvals of applications or water rights.

(b) The requirement in subsection (a) shall not apply to applications that propose to partially overlap the authorized place of use with any of the following:

(1) A municipality;

(2) an irrigation district;

(3) an irrigation ditch company;

(4) a rural water district;

(5) another authorized place of use that cannot all be physically served by all of the water rights and approvals of applications;

(6) an authorized place of use that is owned by different landowners who do not operate together; or

(7) the owner or owners of the water rights and approvals of applications demonstrate both of the following to the chief engineer:

(A) It is not practical or desirable to have a complete overlap.

(B) Allowing an incomplete overlap of authorized places of use will not prejudicially and unreasonably affect the public interest. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-709; effective Sept. 22, 2000.)

K.A.R. 5-3-6. Forfeiture, revocation and dismissal. Failure of the applicant or his or her successors to comply with the provisions of the approval of application and permit to proceed and its terms, conditions and

limitations without good cause shall result in the forfeiture of the priority date, revocation of the permit and dismissal of the application. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-3-6a. Sealing pumps. If the chief engineer, or any of his or her duly authorized representatives, has reasonable cause to believe that any person has failed to obey an order of the chief engineer to cease and desist from operating a pump or other diversion device, the chief engineer or his or her duly authorized representative shall place a seal, or chain and padlock, on the pump or device in such a manner as to render the pump or other diversion device inoperable.

If the seal, or chain and padlock, is broken without the written permission of the chief engineer, this shall create a rebuttable presumption that the pump had been unlawfully operated in violation of the order of the chief engineer and that the water right holder has been acting in violation of the conditions of his or her permit to appropriate water for beneficial use.

The suspected violator shall be informed in writing of the creation of this presumption at the time the seal, or chain and padlock, is installed on the pump or other diversion device. (Authorized by K.S.A. 82a-706a, 82a-706b; effective May 1, 1980.)

K.A.R. 5-3-7. Request for extension of time. For applications filed after the effective date of these regulations, any request for extension of time either for completion of diversion works or for perfecting the appropriation shall be submitted to the chief engineer prior to the expiration of the time allowed for completing the diversion works or perfecting the appropriation. The request shall

be signed by the holder of the approval of application and permit to proceed, by the owner of the land to be irrigated, by an authorized official of a municipality, corporation or partnership, or by some such person that has a recognized interest in the appropriation. Failure to request an extension of time to perfect the appropriation within the time allowed shall limit the water appropriation right to the extent perfected in accordance with the terms, conditions and limitations set forth in the approval of application.

The request for an extension of time either for completion of diversion works or for perfecting the appropriation shall set forth the following:

1. The application number.

2. The date by which it is expected the diversion works will be completed or the appropriation will be perfected.

3. The progress that has been made toward completing the diversion works or perfecting the appropriation.

4. If for irrigation, the number of acres of land to which water has been applied during one calendar year.

5. The reason why the diversion works have not been completed or the appropriation has not been perfected.

6. The plans for completing the diversion works or perfecting the appropriation. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-3-8. Certificate of appropriation. Upon determination that the appropriation diversion works have been completed and an appropriation right perfected in conformity with an approved application and plans, the

chief engineer shall issue a certificate of appropriation setting forth the extent to which the appropriation right was perfected. No appropriation shall be determined for a quantity of water or a diversion rate in excess of that set forth in the approval of application and permit to proceed or in excess of that found to have been actually applied to the approved beneficial use or for any quantity of water found to have been wasted during the calendar year of record used as the basis for perfecting the appropriation right. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-3-9. Public interest. (a) In accordance with K.S.A. 82a-711(b)(5), as amended, in ascertaining whether a proposed use will prejudicially and unreasonably affect the public interest, the chief engineer shall also take into consideration the quantity, rate and availability of water necessary to:

(1) satisfy senior domestic water rights from the stream;

(2) protect senior water rights from being impaired by the unreasonable concentration of naturally occurring contaminants; and

(3) over the long term reasonably recharge the alluvium or other aquifers hydraulically connected to the stream.

(b) Unless otherwise provided by regulation, it shall be considered to be in the public interest that only the safe yield of any source of water supply, including hydraulically connected sources of water supply, shall be appropriated. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-711; effective November 28, 1994.)

K.A.R. 5-3-10. Availability of water for appropriation – safe yield. (a) Except as set forth in subsection (b) and K.A.R. 5-3-16 and K.A.R. 5-3-17, the approval of any new application to appropriate groundwater or surface water for beneficial use, except for domestic use, temporary use and term permits for five years or less, shall not cause the safe yield of the source of water supply to be exceeded, neither shall it otherwise prejudicially and unreasonably affect the public interest. The approval of term permits shall not allow impairment nor prejudicially and unreasonably affect the public interest.

(b) This regulation shall not apply to an application which proposes:

(1) to divert water from a source of water supply subject to a different safe yield, allowable appropriation, depletion or other similar type of criteria adopted by rule and regulation of the chief engineer or intensive groundwater use control area order of the chief engineer issued pursuant to K.S.A. 82a-1036 et seq., or

(2) to use water in a manner so that there is no significant net consumptive use of the local source of supply either in quantity or availability of water for use by other appropriators.

(c) If a total quantity of water that is available for appropriation in any basin, subbasin, stream reach or other hydrologic unit has been determined by the chief engineer prior to the date that application is filed, the total quantity of water authorized by vested rights, prior appropriations, requests by prior unapproved applications and the proposed appropriation shall be determined by the chief engineer.

(1) If the total quantity of water authorized and requested by applications with earlier filing dates is less than or equal to the total annual quantity of water determined to be available for appropriation, or if no total quantity of water available was determined by the chief engineer prior to the date the application was filed, the following procedures shall be used by the chief engineer to further evaluate the applications:

(A) K.A.R. 5-3-11 shall be used to evaluate an application to appropriate groundwater from an unconfined aquifer;

(B) K.A.R. 5-3-14 shall be used to evaluate an application to appropriate groundwater from a confined aquifer; or

(C) K.A.R. 5-3-15 shall be used to evaluate an application to appropriate surface water.

(2) If the total quantity of water authorized and requested exceeds the limit determined by the chief engineer pursuant to this subsection, the application shall be denied or considered only for the quantity available. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-711; effective November 28, 1994.)

K.A.R. 5-3-11. Availability of water for appropriation – safe yield; unconfined groundwater aquifers. (a) Each application to appropriate groundwater from an unconfined aquifer shall be processed in accordance with this regulation.

(b) To determine the safe yield available for appropriation from an unconfined aquifer at a specific location, the following procedure shall be used by the chief engineer:

(1) The amount of calculated recharge occurring within the area of consideration shall be determined by the chief engineer.

(2) That amount shall be multiplied by the percent of calculated recharge determined by the chief engineer to be available nondomestic groundwater and surface water for appropriation.

(3) The total quantity of water authorized and requested in the same area of consideration shall be subtracted from the number derived from paragraph (b)(2) above. If a water right or permit authorizes more than one point of diversion and not all of them are within the area of consideration, the authorized quantity shall be divided equally between or among all the points of diversion, unless information is available to more accurately distribute the authorized quantity between or among the multiple points of diversion.

(c)(1) If the quantity of water remaining is sufficient to satisfy the proposed application, then the safe yield criteria shall be deemed to have been met, unless there are other relevant factors that need to be taken into account in order to protect the public interest. The application shall then be processed according to other criteria in effect in that area.

(2) If there is sufficient water available to reasonably satisfy part of the request, then the application shall be approved for the quantity available if the remaining quantity is reasonable for the proposed use and the application meets the other applicable criteria in that area.

(3) If no water is available to satisfy the proposed application, then the application shall be denied by the chief engineer.

(d)(1) In making a safe yield calculation, unless the context clearly requires otherwise, the following words and phrases shall have the meanings ascribed to them:

(A) "Circle" means a circle with a two-mile radius, with the proposed point of diversion as the center.

(B) "Area of consideration" means the portion of the two-mile circle located within the limits of the unconfined aquifer expressed in acres, including any area of the circle located within the boundaries of a groundwater management district. The area of consideration shall not include any portion of the circle located outside the state of Kansas.

(C) "Total quantity of water" means the total combined authorized annual quantities under all groundwater rights and approvals of applications, and requested by pending applications with a senior priority in that unconfined aquifer except for domestic use, temporary permits, and term permits for five or fewer years with priority dates senior to the proposed application and with points of diversion located within the area of consideration.

(D) "Calculated recharge" means that portion of the average annual precipitation that becomes recharge to the unconfined aquifer, calculated using the data shown on water resources investigations report 87-4230, plate no. 4, dated 1987, prepared by the United States geological survey, hereby adopted by reference, interpolated to the nearest tenth of an inch, unless better or more specific recharge data for the area of consideration, basin, or

aquifer is supplied by the applicant or is already available to the chief engineer.

(2) The calculated recharge in the Kansas river alluvium shall be determined by taking 25% of the average annual rainfall in the area of consideration as taken from figure 2, United States geological survey water resources investigation report 92-4137, dated 1993, hereby adopted by reference, interpolated to the nearest 0.1 of an inch.

(3) For each application to appropriate groundwater from an unconfined aquifer filed on or after the effective date of this regulation, the percentages of calculated recharge that shall be considered to be available for appropriation shall be determined using the following table:

Percent of Calculated Recharge Available for Appropriation	**River Basin**
(A) 100% plus the recharge from the Missouri River available to the well, as calculated by a Jenkins or similar stream-depletion technique.	Missouri
(B) 100%	Arkansas River below Hutchinson* Big Blue River ** Black Vermillion River **

Delaware River **
Little Arkansas River below GMD No. 2 *
Little Blue River **
Little Osage River **
Lower Republican River Basin outside the effective alluvium and the Belleville formation that does not contribute significant baseflow to a stream**
Marais des Cygnes River **
Mill Creek **
Marmaton River **
Nemaha River **
Pottawatomie Creek **
Smoky Hill River below its confluence with the Saline River **
Spring River *
Stranger Creek **
Sugar Creek **
Vermillion Creek **
Wakarusa River **
Walnut River *
Any hydrologic unit that does not contribute significant baseflow to a stream.

(C) 75% Any hydrologic units in the following river basins that contribute significant baseflow to a stream:
Arkansas River above Hutchinson*
Caney River *
Cottonwood River *
Cow Creek outside the boundaries of GMD No. 2 and GMD No. 5*
Elk River *
Fall River *
Kansas River **

Little Arkansas River above GMD No. 2 *
Lower Republican River Basin outside the effective alluvium and the Belleville formation that contributes significant baseflow to a stream. **
Neosho River *
Ninnescah River *
Saline River **
Salt Creek **
Smoky Hill above its confluence with the Saline River **
Solomon River **
South Fork Ninnescah River (except Smoots Creek) *
Upper Republican Basin outside areas closed to new appropriations as set forth in paragraph (d)(5) of this regulation. **
Verdigris River *
Any other basin in Kansas not specifically identified

(D) 50%

Any hydrologic units in the following river basins that contribute significant baseflow to a stream:
Bluff Creek-Chikaskia River *
Bluff Creek-Cimarron River *
Chikaskia River *
Cimarron River outside GMD No. 3*
Medicine Lodge River *
North Fork Ninnescah River *
Rattlesnake Creek *
Salt Fork Arkansas River *

Sandy Creek *
South Fork Ninnescah River (Smoots Creek only) *

* Located in Arkansas River Basin

** Located in Kansas River Basin

(4) The total quantity of water and the percent of calculated recharge originally available to be appropriated for nondomestic groundwater and surface water use in all or part of the following basins, subbasins, stream reaches, and other hydrologic units identified in electronic data file unitbsn.e00, dated July 30, 1997, prepared by the division of water resources, Kansas department of agriculture and hereby adopted by reference for the purpose of defining the boundaries of the hydrologic units, shall be determined using the following table:

South-Central Kansas Designated Unit Areas

Map Label	Effective Date	Area (acres)	Recharge Rate (in/yr)	Recharge Quantity (Ac-ft/yr)	Percentage of Recharge to Appropriate	Original Quantities Available (Ac-ft/yr)	General Location (Twp.-Range)	Abbreviation for Portion of Basin or Basins
1	November 28, 1994	32204	1.8	4831	100%	4831	29-12w	Chikaskia
2	November 28, 1994	41426	1.8	6214	100%	6214	30-11w	Chikaskia
3	November 28, 1994	55524	1.8	8329	50%	4164	29-10w	Chikaskia
4	November 28, 1994	43603	1.8	6540	50%	3270	30-10w	Chikaskia
5	November 28, 1994	46828	2.0	7805	50%	3902	31-05w	Chikaskia
6	November 28, 1994	46895	2.5	9770	50%	4885	33-03w	Chikaskia
7	November 28, 1994	37378	3.0	9344	50%	4672	34-02w	Chikaskia
8	November 28, 1994	42210	3.0	10553	50%	5276	33-01w	Chikaskia
9	November 28, 1994	15145	2.0	2524	100%	2524	30-08w	Chikaskia
10	November 28, 1994	6855	2.0	1143	100%	1143	31-06w	Chikaskia
11	November 28, 1994	2824	2.0	471	100%	471	31-06w	Chikaskia
12	November 28, 1994	8548	2.0	1425	100%	1425	31-05w	Chikaskia
13	November 28, 1994	12165	2.0	2027	50%	1014	31-07w	Chikaskia
14	November 28, 1994	27213	2.0	4535	50%	2268	32-05w	Chikaskia
15	November 28, 1994	21101	1.5	2638	50%	1319	31-15w	Medicine Lodge
16	November 28, 1994	7489	1.5	936	50%	468	32-11w	Medicine Lodge
17	November 28, 1994	20516	1.5	2564	50%	1282	33-11w	Medicine Lodge
18	November 28, 1994	34426	1.5	4303	50%	2152	29-19w	Rattlesnake
19	November 28, 1994	25566	1.5	3196	50%	1598	29-18w	Medicine Lodge
20	November 28, 1994	56730	1.8	8509	100%	8509	29-14w	Medicine Lodge
21	November 28, 1994	41800	1.8	6270	50%	3135	30-12w	Medicine Lodge
22	November 28, 1994	15825	1.2	1582	50%	791	30-17w	Medicine Lodge
23	November 28, 1994	59864	1.5	7483	50%	3742	29-16w	Medicine Lodge
24	November 28, 1994	37658	1.5	4707	100%	4707	29-15w	Medicine Lodge
25	November 28, 1994	102144	1.9	16173	75%	12130	28-09w	SF Ninnescah
26	November 28, 1994	10638	2.0	1773	75%	1330	28-07w	SF Ninnescah
27	Revision	84047	2.0	14008	50%	7004	26-07w	SF Ninnescah
28	November 28, 1994	5196	2.2	953	75%	714	28-04w	SF Ninnescah
29	November 28, 1994	73816	1.9	11688	100%	11688	28-07w	Chik/SFNin/Nin
30	November 28, 1994	38631	2.0	6442	100%	6442	30-05w	Chik/SFNin/Nin/Ark
31	November 28, 1994	5572	2.3	1068	100%	1068	31-04w	Chik/Ark
32	November 28, 1994	21937	2.0	3656	100%	3656	27-07w	SF Ninnescah
33	November 28, 1994	40646	2.5	8468	75%	6351	23-08w	Arkansas
34	November 28, 1994	41974	2.3	8045	75%	6034	24-08w	NF Ninnescah
35	November 28, 1994	3917	2.0	653	75%	490	26-08w	NF Ninnescah
36	November 28, 1994	12106	2.0	2018	75%	1513	27-10w	NF Ninnescah
37	November 28, 1994	8135	2.0	1356	75%	1017	26-08w	NF Ninnescah
38 *	Revision	34550	1.2	3455	50%	1728	32-20w	Bluff Creek (Cim)
39	November 28, 1994	21875	1.2	2188	50%	1094	33-20w	Bluff Creek (Cim)
40	November 28, 1994	11466	1.2	1147	50%	573	33-20w	Bluff Creek (Cim)
41	November 28, 1994	8565	1.6	1142	50%	571	34-17w	Salt Fork Arkansas
42	November 28, 1994	3746	1.6	499	50%	250	33-15w	Salt Fork Arkansas
43	November 28, 1994	9763	1.6	1302	50%	651	34-15w	Salt Fork Arkansas
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Sandy Cr

(5) The following hydrologic units, which have been determined by the chief engineer to be fully appropriated based on the safe yield criteria, shall be closed to further new surface water and groundwater appropriations except for domestic use, temporary permits, and term permits for five years or less:

(A) Big Creek, its tributaries and their valley alluviums, and any other aquifer that has a substantial hydraulic connection to an alluvium;

(B) Beaver Creek and Little Beaver Creek, their tributaries and their alluviums, and any other aquifer that has a substantial hydraulic connection to an alluvium;

(C) North Fork Solomon River, its tributaries and their alluviums, and any other aquifer that has a substantial hydraulic connection to an alluvium;

(D) Prairie Dog Creek, its tributaries and their alluviums, and any other aquifer that has a substantial hydraulic connection to an alluvium;

(E) Sappa Creek, its tributaries and their alluviums, and any other aquifer that has a substantial hydraulic connection to an alluvium;

(F) South Fork of the Solomon River, its tributaries and their alluviums above Glen Elder Dam, and any other aquifer that has a substantial hydraulic connection to an alluvium; and

(G) Walnut Creek, its tributaries and their alluviums, and other hydraulically connected aquifers outside the boundaries of the intensive groundwater use control area created by order of the chief engineer shall be those set forth below:

Section	Township	Range	County
28 through 33	18S	23W	Barton
4 through 10 and 14 through 36	18S	14W	Barton
1 through 36	18S	25W	Barton
3 through 11 and 14 through 23	29S	13W	Barton
1 through 6, 9 through 15, and 22 through 24	29S	14W	Barton
1	19S	15W	Barton
31 through 35	17S	16W	Rush
19 through 36	17S	17W	Rush
19 through 36	17S	18W	Rush
23 through 26 and 31 through 36	17S	19W	Rush
35 and 36	17S	20W	Rush
1 through 36	18S	16W	Rush
1 through 36	18S	17W	Rush
1 through 36	18S	18W	Rush
1 through 36	18S	19W	Rush
1 through 36	18S	20W	Rush
3 through 6	19S	16W	Rush
1 through 6	19S	17W	Rush
1, 2, 11, and 12	19S	20W	Rush
32 through 34	17S	25W	Ness

Section	Township	Range	County
1 through 36	18S	21W	Ness
1 through 4 and 7 through 36	18S	22W	Ness
19, 25 through 36	18S	23W	Ness
23 through 27, 35, and 36	18S	24W	Ness
1 through 5, 10 through 13, 24, 33, and 34	28S	25W	Ness
4 through 9	19S	21W	Ness
1 through 12, 17 and 18	19S	22W	Ness
1 through 23	19S	23W	Ness
1, 2, and 7 through 29	19S	24W	Ness
1 through 3 and 11 through 13	19S	25W	Ness

(6) "Technical guidelines for determining the availability of groundwater for appropriation in the Lower Republican River Basin and Belleville Formation and the availability of surface water for appropriation in the Lower Republican River Basin," adopted by the chief engineer, division of water resources, Kansas department of agriculture, on October 1, 1999, is hereby adopted by reference as determining the availability of groundwater for appropriation in the lower Republican River basin and Belleville formation and the availability of surface water for appropriation in the lower Republican River basin.

(7)(A) All applications for a permit to appropriate groundwater from the area described in paragraph (7) (B) for any beneficial use, except for domestic use, temporary permits, and short-term permits for five or fewer years, shall be accepted for filing and given a file number, if

acceptable for filing. The application shall be returned by the chief engineer, and the reason that the application will be denied shall be specified by the chief engineer. The applicant shall be given 30 days to show cause why the application should not be denied. If the applicant does not show good cause, the application shall be dismissed.

(B) The area is described as sections 17, 18, 19, 20, township 7 south, range 6 west, and sections 13, 14, township 7 south, range 7 west, all in Mitchell County, Kansas.

(C) All applications for permits to appropriate groundwater from sections 29 and 30 in township 7 south, range 6 west, and sections 12, 15, 16, 21, 22, 23, 24, 25, 26, and 27 in township 7 south, range 7 west, all in Mitchell County, Kansas, for any beneficial use, except for domestic use, temporary permits, and term permits for five or fewer years, shall be processed based on the criteria set forth below in paragraph (7) (D).

(D) No new wells shall be allowed in the area described in paragraph (7) (C) above if the proposed well would produce one foot or more of additional drawdown at any existing well in that area and if the proposed well was pumped continuously for 45 days (1,080 hours) at the rate requested on the application. This analysis shall be done by using the Theis equation, with a coefficient of transmissivity of 71,000 gallons per day per foot (gpd/ft) and a coefficient of storage of 0.02.

(E) Any application for a change in the point of diversion filed for a well located in the areas described in paragraphs (7) (B) and (C) above shall be limited to a move of no more than 100 feet, unless the applicant can show the chief engineer that the proposed move will not

prejudicially and unreasonably affect the public interest, will not impair existing water rights, and otherwise complies with the provisions of K.S.A. 82a-708b, and amendments thereto. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711; effective Nov. 28, 1994; amended Sept. 22, 2000.)

K.A.R. 5-3-12. (Authorized by K.S.A. 82a-701 (g), 82a-706a; effective May 1, 1980; revoked May 1, 1987.)

K.A.R. 5-3-13. Dewatering of construction sites. The chief engineer shall limit the time in which water may be withdrawn for dewatering purposes. Any water right that may be perfected by the dewatering project shall be deemed abandoned and terminated upon the completion of the dewatering project. Any extension of time in which to complete the project must be requested in writing by the applicant prior to the expiration date on the permit. (Authorized by K.S.A. 82a-706a, 82a-712; effective May 1, 1980.)

K.A.R. 5-3-14. Availability of water for appropriation – safe yield; confined groundwater aquifers. (a) Each application to appropriate water from a confined aquifer shall be processed on a case by case basis so that the safe yield of the source of water supply is not exceeded.

(b) Until a specific regulation is adopted by the chief engineer for the confined source of water supply, the analysis shall be made using the best information reasonably available to the chief engineer. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-711; effective November 28, 1994.)

K.A.R. 5-3-15. Availability of water for appropriation-safe yield; surface water.

(a) Each application filed to directly divert the natural flow of the Kansas river, the Missouri river, the Big Blue river the Spring river, or their tributaries, shall:

(1) be processed in accordance with K.A.R. 5-3-9; and

(2) meet all other requirements for the approval of a new application.

(b) The water right owner shall be required by the chief engineer to meet minimum desirable streamflows (MDS), assurance district target flows (assurance target flows) and division of water resources (DWR) target flows where applicable.

(c) Each application filed to directly divert the natural flow from any stream or tributary in the state of Kansas, except those streams listed in paragraph (a) of this regulation, shall have the following conditions of approval.

(1) If MDS or assurance target flows or DWR target flows have been set for that stream, and MDS administration has been requested by the Kansas water office, diversion of natural flow shall only be permitted if MDS, assurance target flows or DWR target flows, if applicable, are being met at the gage or gages immediately below the proposed point of diversion.

(2) Diversion of natural flow shall not take place unless there is water available to satisfy all demands by senior water rights and permits.

(3) The stream flow shall not be stopped at the first riffle below the point of diversion while diversion is taking place under the authority of that water right or permit.

(4) During the period October 1 through June 30, the verbal or written permission of the chief engineer, or an authorized representative of the chief engineer, shall be obtained in order to divert water each time the applicant desires to divert water.

(5) The applicant shall be required to demonstrate that the direct diversion of streamflow is not necessary during the period July 1 through September 30 each calendar year because of lack of need; the availability of adequate water storage or alternative water supplies; or other similar reasons.

(6) During the period July 1 through September 30 each calendar year, no direct diversions of water shall be permitted unless written permission is obtained from the chief engineer or the chief engineer's authorized representative.

(d) Each application filed by a member of an operational assurance district for that stream shall be processed taking into consideration the provisions of the assurance district contract.

(e) Each application filed for a point of diversion which might divert water released from storage pursuant to an agreement between the state of Kansas and the federal government shall be processed taking into consideration the provisions of that agreement.

(f) Each application filed to divert the natural flow of any stream subject to a more specific regulation adopted by the chief engineer or an intensive groundwater use

control area order issued by the chief engineer, for a basin or portion thereof, shall be processed in accordance with the provisions of that regulation or order. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-711; effective November 28, 1994.)

K.A.R. 5-3-16. Safe yield; exemptions for up to 15 acre-feet of groundwater. In any area of the state outside a groundwater management district that is subject to safe yield criteria and is not closed by regulation or intensive groundwater use control area order by the chief engineer to new nondomestic, nontemporary permits and term permits for five or fewer years, applications to appropriate groundwater shall be exempt from meeting the safe yield criteria if the chief engineer finds that all of the following conditions are met:

(a) The sum of the annual quantity requested by the proposed appropriation and the total annual quantities authorized by prior permits allowed because of an exemption pursuant to this regulation does not exceed 15 acre-feet in a ½-mile-radius circle surrounding the proposed point of diversion.

(b) Well spacing criteria in the area have been met.

(c) The approval of the application does not authorize an additional quantity of water out of an existing authorized well with a nondomestic permit or water right, which would result in a total combined annual quantity of water authorized from that well in excess of 15 acre-feet.

(d) All other criteria for processing a new application to appropriate water at that location have been met. (Authorized by K.S.A. 82a-706a; implementing K.S.A.

1999 Supp. 82a-711; effective Nov. 28, 1994; amended Sept. 22, 2000.)

K.A.R. 5-3-17. Safe yield; miscellaneous exemptions. In any area of the state which is subject to safe yield criteria, and outside a groundwater management district or an intensive groundwater use control area closed to new non-domestic, non-temporary uses, each application to appropriate groundwater for a beneficial use shall be exempt from meeting the safe yield criteria if the chief engineer finds that:

(a) the proposed use has occurred continuously since prior to the effective date of this regulation;

(b) the proposed use could have reasonably been classified by the division of water resources as a domestic use at the time the use began; and

(c) all other requirements in effect for the approval of a new application to appropriate water at that location have been met. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-711; effective November 28, 1994.)

K.A.R. 5-3-18. Applicant's opportunity to submit additional information. (a) If at any stage of processing an application, it is determined by the chief engineer that an application does not meet the safe yield criteria, the applicant shall be notified by the chief engineer in writing prior to denial of the application that the safe yield requirements have not been met and the reason for the proposed denial. In this written notice, the chief engineer shall allow the applicant 15 days to request time in which to submit additional information to show why the application should be approved.

(b) Within 15 days the applicant shall either submit the additional information or file a written request for a reasonable amount of time to submit an engineering report or similar type of hydrologic analysis to show that approval of the application will not cause the safe yield of the source of water supply to be exceeded.

(c) If the applicant fails to timely show to the satisfaction of the chief engineer that the application can be approved, then the application shall be denied by the chief engineer. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-711; effective November 28, 1994.)

K.A.R. 5-3-19. Maximum reasonable annual quantity of water for irrigation use. (a) For applications filed before the effective date of this regulation, the maximum annual quantity of water reasonably necessary to irrigate crops shall be determined as follows:

(1) In that area of Kansas located between the eastern border of Kansas and the western border of range 5 east, the maximum reasonable annual quantity of water shall not exceed one acre-foot of water per acre irrigated.

(2) In that area of Kansas located between the eastern border of range 6 east and the western border of range 20 west, the maximum reasonable annual quantity of water shall not exceed 1½ acre-feet of water per acre irrigated.

(3) In that area of Kansas located between the eastern border of range 21 west and the western border of Kansas, the maximum reasonable annual quantity of water shall not exceed two acre-feet of water per acre irrigated.

(b) On and after the effective date of this regulation, the maximum annual quantity of water reasonably necessary to irrigate crops shall be determined by multiplying the number of irrigated acres by the county value found on the map adopted by reference in K.A.R. 5-3-24. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e) and K.S.A. 1999 Supp. 82a-711; effective Sept. 22, 2000.)

K.A.R. 5-3-20. Maximum reasonable annual quantity of water approvable for a new appropriation of water for irrigation use. (a) The maximum reasonable annual quantity of water that may be approved for use on irrigated land for applications filed before the effective date of this regulation shall be limited to the following:

(1) The quantity of water available for appropriation as determined by the safe yield, allowable appropriation or similar type of limitation adopted by regulation of the chief engineer for the area in which the proposed point of diversion will be located;

(2) the quantity of water reasonably physically available from the source of water supply based on the physical characteristics of the source of water supply and the proposed diversion works; and

(3) the quantity of water reasonably necessary to irrigate crops in the region of the state where the proposed place of use is located as set forth in K.A.R. 5-3-19(a). The authorized quantity shall be determined by multiplying the number of acres approved to be irrigated by the quantity per acre set forth in K.A.R. 5-3-19(a).

(b) The maximum reasonable annual quantity of water that may be approved for use on irrigated land for

applications filed on or after the effective date of this regulation shall be limited to the following:

(1) The quantity of water available for appropriation as determined by the safe yield, allowable appropriation or similar type of limitation adopted by regulation of the chief engineer for the area in which the proposed point of diversion will be located;

(2) the quantity of water reasonably physically available from the source of water supply based on the physical characteristics of the source of water supply and the proposed diversion works; and

(3) the quantity of water reasonably necessary to irrigate crops in the region of the state where the proposed place of use is located as set forth in K.A.R. 5-3-19(b).

(c) The quantity specified in subsection (a) or (b) may be exceeded only if the applicant demonstrates both of the following to the chief engineer:

(1) Because of specialty crops or other unusual conditions, the quantity specified in K.A.R. 5-3-19 is insufficient.

(2) The requested quantity is reasonable for the intended irrigation use, is not wasteful, and will not otherwise prejudicially and unreasonably affect the public interest. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 1999 Supp. 82a-711, and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-3-21. Perfection of a water right for irrigation use. (a) For applications with a priority date before the effective date of this regulation, the maximum

reasonable annual quantity of water that may be perfected for irrigation use shall not exceed the following:

(1) The maximum annual quantity of water actually applied to beneficial use in any one calendar year in accordance with the terms, conditions, and limitations of the approval of application during the perfection period; and

(2) the quantity of water reasonably necessary to irrigate crops in the region of the state where the place of use is located as set forth in K.A.R. 5-3-19(a). The reasonable quantity shall be determined by multiplying the number of acres actually irrigated during the year of record by the quantity per acre as set forth in K.A.R. 5-3-19(a).

(b) For applications with a priority date on or after the effective date of this regulation, the maximum reasonable annual quantity of water that may be perfected for irrigation use shall not exceed the following:

(1) The maximum annual quantity of water actually applied to beneficial use in any one calendar year in accordance with the terms, conditions, and limitations of the approval of application during the perfection period; and

(2) the quantity of water reasonably necessary to irrigate crops in the region of the state where the place of use is located as set forth in K.A.R. 5-3-19(b). The reasonable quantity shall be determined by multiplying the number of acres actually irrigated during the year of record by the quantity per acre set as forth in K.A.R. 5-3-19(b).

(c) The quantity specified in subsection (a) or (b) may be exceeded only if the water right owner demonstrates both of the following to the chief engineer:

(1) Because of specialty crops or other unusual conditions, the quantity specified in K.A.R. 5-3-19 was insufficient.

(2) A greater quantity was reasonable for the intended irrigation use, was not wasteful, and did not otherwise prejudicially and unreasonably affect the public interest. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e) and K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-3-22. Maximum reasonable quantity of water for livestock and poultry. (a) The following quantities shall be deemed the maximum quantity of water reasonable for nondomestic livestock and poultry water use:

Livestock/poultry	Drinking water (gallons per head per day)	Additional quantities for servicing/flushing (gallons per head per day)
Cattle, beef	15	0 (open lot) 100 [confined building capacity (cbc)]
Cattle, dairy	35	100 (cbc)
Swine		
finishing	5	15 (cbc)
nursery	1	4 (cbc)
sow and litter	8	35 (cbc)
gestating sow	6	25 (cbc)

Sheep	2	0 (open lot) 15 (cbc)
Horses	12	0 (open lot) 100 (cbc)
Poultry		
chickens (100 layers)	9	200 (cbc) 400 (cbc)
turkeys (100)	30	

(b) The maximum reasonable quantity of water that may be approved for nondomestic livestock and poultry use for applications approved on or after the effective date of this regulation shall be limited as set forth in subsection (a) above. The quantities set forth in subsection (a) may be exceeded only if the applicant demonstrates both of the following to the chief engineer:

(1) The requested quantity is reasonable for the intended use.

(2) This quantity not wasteful and will not otherwise prejudicially and unreasonably affect the public interest.

(c) For all other types of nondomestic livestock, poultry, birds, and animals, the maximum quantity of water approved for beneficial use shall be reasonable.

(d) The maximum reasonable quantity of water that may be perfected for nondomestic livestock or poultry use shall not exceed the quantities set forth in subsections (a), (b) and (c) above, unless the water right owner demonstrates both of the following to the chief engineer:

(1) A larger quantity of water was actually applied to beneficial use within the terms, conditions, and limitations of the permit within the perfection period.

(2) The quantity used was not wasted. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 1999 Supp. 82a-711, K.S.A. 82a-712, and K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-3-23. Maximum reasonable annual quantity approvable for irrigation use for an application for change in place of use and a request to reduce a water right. (a) Except as provided in subsections (c), (d), and (e), for water rights with a priority date before the effective date of this regulation, the maximum reasonable annual quantity of water that may be approved for either of the following shall be that quantity of water reasonably necessary to irrigate crops in the region of the state where the proposed place of use is located as set forth in K.A.R. 5-3-19(a):

(1) An application for change in place of use for irrigation filed pursuant to K.A.R. 82a-708b and amendments thereto; or

(2) a request to reduce the authorized place of use for irrigation for a water right filed pursuant to K.A.R. 5-7-5.

(b) Except as provided in subsections (c), (d), and (e), for water rights with a priority date on or after the effective date of this regulation, the maximum reasonable annual quantity of water that may be approved for either of the following shall be that quantity of water reasonably necessary to irrigate crops in the region of the state where the proposed place of use is located as set forth in K.A.R. 5-3-19(b):

(1) An application for change in place of use for irrigation filed pursuant to K.A.R. 82a-708b and amendments thereto; or

(2) a request to reduce the authorized place of use for a water right filed pursuant to K.A.R. 5-7-5.

(c) The maximum reasonable quantities approvable in subsections (a) and (b) above shall not exceed either of the following:

(1) The applicable quantity set forth in either subsection (a) or (b) above; or

(2) the maximum quantity of acre-feet per acre authorized by the vested water right or certificate of appropriation, whichever is greater. The maximum authorized quantity of acre-feet per acre shall be calculated by dividing the maximum annual quantity of water authorized at the time the application for change or request to reduce is filed by the number of acres authorized at the time the application for change is filed.

(d) The quantities set forth above in subsections (a), (b), and (c) above may be exceeded only if the applicant demonstrates both of the following to the chief engineer:

(1) Because of specialty crops or other unusual conditions, the quantity specified in K.A.R. 5-3-19(a) is insufficient.

(2) The requested quantity is reasonable for the intended irrigation use, is not wasteful, and will not otherwise prejudicially and unreasonably affect the public interest.

(e) The maximum annual quantity of water approved pursuant to this regulation shall not exceed the maximum annual quantity of water authorized by the water right at the time the change application is approved. (Authorized by K.S.A. 82a-706a; implementing K.S.A.

82a-707(e) and K.S.A. 1999 Supp. 82a-708b; effective Sept. 22, 2000.)

K.A.R. 5-3-24. Reasonable quantity for irrigation use. The Kansas department of agriculture, division of water resources' map titled "reasonable quantities for irrigation use in Kansas, by county," dated October 21, 1999, is hereby adopted by reference. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 1999 Supp. 82a-711, and K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-3-25. Conditions on permits and certificates. (a) All terms, conditions, and limitations placed on an approval of application by the chief engineer pursuant to the provisions of K.S.A. 82a-712, and amendments thereto, shall remain in full force and effect until expressly modified or removed by the chief engineer.

(b) Unless the terms and conditions are expressly modified or removed by the subsequent approval, certification, or other order of the chief engineer, none of the following shall modify or remove any of the terms, conditions, and limitations placed on the original approval of applications or water right:

(1) The approval of an application to change the place of use, the point of diversion, or the use made of water under the authority of K.S.A. 82a-708b and amendments thereto;

(2) the issuance of a certificate of appropriation pursuant to K.S.A. 82a-714 and amendments thereto; or

(3) the issuance of any other findings and order relative to the approval of application or water right. (Authorized by K.S.A. 82a-706a; implementing K.S.A.

1999 Supp. 82a-708b, K.S.A. 1999 Supp. 82a-711, K.S.A. 82a-712, and K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-3-26. Availability of water for appropriation from portions of the Pawnee sub-basin in Ness and Hodgeman counties. (a) Each application received on or after January 1, 1989 for a permit to appropriate surface or groundwater from Buckner Creek, Saw Log Creek and the Pawnee River, their tributaries, their alluviums, and hydraulically connected sources of water supply in Ness and Hodgeman counties for beneficial use, except for domestic use, temporary permits, and term permits for five years or less, shall be accepted for filing and given a file number, if acceptable for filing.

(b) All applications described in subsection (a) above that do not meet the safe yield, well spacing, or all other applicable regulations in effect at the time they were filed shall be dismissed.

(c) All applications described in subsection (a) above that do not meet the criteria of subsection (b) shall not be processed and shall be held until the chief engineer determines whether additional water is available for appropriation in the area described in subsection (a). Those applications shall be held until the chief engineer amends this regulation, or July 1, 2002, whichever comes first. If the chief engineer amends this regulation, the applications being held shall be processed in accordance with the provisions of those new regulations.

(d) On July 1, 2002, if the chief engineer has not adopted any new regulations pertaining to the applications being held pursuant to subsection (c), all pending applications to appropriate surface and groundwater from

the alluvial aquifer and hydraulically connected sources of water supply being held pursuant to subsection (c) shall be processed in accordance with K.A.R 5-3-11 and all regulations that were in effect at the time the applications were filed.

(e) Each applicant with a pending application shall be notified by the chief engineer that the application is being held and the reason why it is being held. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711 and K.S.A. 82a-721; effective Sept. 22, 2000.)

K.A.R. 5-3-27. Equus Beds special groundwater quality area. (a) A special groundwater quality area located within the boundaries of the Equus Beds groundwater management district no. 2 shall be hereby established in the following area consisting of approximately 36 square miles in northwest Harvey County, south-central McPherson County, and northeast Reno County, Kansas:

(1) Sections 3 through 10, 15 through 22, and 27 through 34, of township 22 south, range 3 west, Harvey County;

(2) sections 31 through 34, township 21 south, range 3 west, and section 36, township 21 south, range 4 west, McPherson County; and

(3) sections 1, 12, 13, 25, 26, and 36, township 22 south, range 4 west, Reno County, Kansas.

(b) Each application for a new appropriation of groundwater, a newly constructed well, or a change in the point of diversion for a well within the area shall be reviewed by the chief engineer to determine the effect of the proposed appropriation or well on the movement of saltwater pollution in the area.

(c) A test well log shall accompany each type of application described in subsection (b) within the area described in subsection (a) above and shall include the following information:

(1) Depth to bedrock;

(2) a water quality analysis of water taken from the bottom 20 feet of the aquifer, including sodium and chloride concentrations; and

(3) a water quality analysis of water taken within the top 20 feet of the aquifer, including specific conductance and chloride concentrations.

(d) If the chief engineer can not determine whether the proposed application will affect the movement of saltwater pollution in the area in a manner that is adverse to the public interest or that will cause impairment to other water rights by causing an unreasonable deterioration of the water quality, then the applicant shall submit any information the chief engineer needs to make that determination. The information shall be submitted within a reasonable time period specified by the chief engineer.

(e) The chief engineer shall submit the proposed application to the board of the Equus Beds groundwater management district no. 2 for its review and recommendation. The board shall have 30 days to review the application and provide its recommendation to the chief engineer. The recommendation of the board shall be considered by the chief engineer in making a decision as to whether the application can be approved as filed or modified.

(f) The application shall be dismissed and its priority forfeited if either of the following conditions is met:

(1) The chief engineer determines that approval of the application will affect the movement of saltwater pollution in the area in a manner that will prejudicially and unreasonably affect the public interest or that will cause impairment to other water rights by causing an unreasonable deterioration of the water quality because of saltwater pollution.

(2) The applicant fails to submit the information requested by the chief engineer within the time specified.

(g) The application shall be approved if both of the following conditions are met:

(1) The chief engineer determines that the approval of the application, as filed or modified, will not affect the movement of saltwater pollution in the area in a manner that is adverse to the public interest and will not cause impairment to other water rights by causing an unreasonable deterioration of the water quality because of saltwater pollution.

(2) The application meets all other statutory and regulatory criteria.

(h) In addition to reporting the information normally required in the water use reports required by K.S.A. 82a-732, and amendments thereto, each owner of a water right or approval of application shall also report the depth to the static water level in each well, in a manner acceptable to the chief engineer.

(i) All groundwater diversion works permitted in the Equus Beds special groundwater quality area shall be equipped with a water flowmeter that meets the specifications adopted by the chief engineer, except for domestic wells, temporary wells, and wells authorized by term

permits for fewer than five years. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c, K.S.A. 82a-709, K.S.A. 82a-710, K.S.A. 1999 Supp. 82a-711, and K.S.A. 82a-732; effective Sept. 22, 2000.)

K.A.R. 5-3-28. Lyons special groundwater quality area. (a) A special groundwater quality area all in Rice County, Kansas, and partially located within the boundaries of the Big Bend groundwater management district no. 5 shall be hereby established in the following described area consisting of approximately 37 square miles in central Rice County, Kansas:

(1) Sections 33, 34, and 35 of township 19 south, range 8 west;

(2) sections 1-4, 9-16, 21-25, township 20 south, range 8 west;

(3) sections 7, 17-21, 27-34, township 20 south, range 7 west; and

(4) sections 3-5, township 21 south, range 7 west.

(b) Each application for a new appropriation of groundwater, a newly constructed well, or a change in point of diversion for a well proposed to be located within the area shall be reviewed by the chief engineer to determine whether the proposed appropriation will have any adverse effect on the movement and remediation of saltwater pollution south and east of Lyons, Kansas.

(c) A test well log shall accompany each type of application filed for a point of diversion described in subsection (b) that is proposed to be located within the area described in subsection (a), and shall include the following information:

(1) Depth to bedrock;

(2) a water quality analysis of water taken from the bottom 20 feet of the aquifer, including analysis of sodium and chloride concentrations; and

(3) a water quality analysis of water taken within the top 20 feet of the aquifer, including analysis of sodium and chloride concentrations.

(d) If the chief engineer can not determine whether the proposed application will affect the movement and cleanup of saltwater pollution south and east of Lyons in a manner that is adverse to the public interest or that will cause impairment to other water rights by causing an unreasonable deterioration of the water quality, then the applicant shall submit any information the chief engineer needs to make that determination. The information shall be submitted within a reasonable time period specified by the chief engineer.

(e) If the proposed point of diversion is located within the district, the proposed application shall be submitted by the chief engineer to the board of the district for review and recommendation. The board shall have 30 days to review the application and submit its recommendation to the chief engineer. The recommendation of the board shall be considered by the chief engineer in making a decision as to whether the application can be approved as filed or modified.

(f) The application shall be dismissed and its priority forfeited if either of the following conditions is met:

(1) The chief engineer determines that approval of the application will affect the movement and cleanup of saltwater pollution south and east of Lyons in a manner

that prejudicially and unreasonably affects the public interest or that will cause impairment to other water rights by causing an unreasonable deterioration of the water quality because of saltwater pollution.

(2) The applicant fails to submit the information requested by the chief engineer within the time specified.

(g) The application shall be approved if both of the following conditions are met:

(1) The chief engineer determines that the approval of the application, as filed or modified, will not affect the movement and cleanup of saltwater pollution south and east of Lyons in a manner that would prejudicially and unreasonably affect the public interest and will not cause impairment to other water rights by causing an unreasonable deterioration of the water quality because of saltwater pollution.

(2) The application meets all other applicable statutory and regulatory criteria. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c, K.S.A. 82a-709, K.S.A. 82a-710, K.S.A. 1999 Supp. 82a-711, and K.S.A. 82a-732; effective Sept. 22, 2000.)

K.A.R. 5-4-1. Distribution of water between users where a prior right is being impaired. When a complaint is received that a prior right to the use of water is being impaired, the following procedure shall be followed:

1. The complaint shall be made to the chief engineer or his or her authorized representative. A complaint may be accepted verbally, in person or by telephone. No action shall be taken by the agency until the complaint is confirmed in writing.

2. An investigation of the physical conditions involved shall be made by the chief engineer or his or her authorized representative.

3. A written report of the investigation shall be prepared and a copy given to the complainant. If the investigation shows there is no basis for further action by the division, the complainant shall be so advised.

4. The complainant shall make a written request to secure water to satisfy his or her prior right.

5. The chief engineer or his or her authorized representative shall give a written legal notice and directive to other water users whose use of water must be regulated to secure water to satisfy the complainant's prior rights.

The request to secure water shall be made on a prescribed form furnished for that purpose by the division of water resources. All water delivered to the user's point of diversion for his or her use at the specified rate or less shall be applied to the authorized beneficial use and count against the quantity of water specified unless the user notifies the chief engineer or his or her authorized representative that diversion and use will be discontinued for a period of time for good reason.

When the quantity of water needed has been delivered to the user's point of diversion or when the user discontinues his or her use of water, those persons who have been directed to regulate their use shall be notified that they may resume the diversion and use of water.

If the available water supply in the source should increase, the chief engineer or his or her authorized representative may allow some or all of the users regulated to resume use depending on the supply. (Authorized

by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-4-4. Well spacing. (a) The spacing between wells shall be sufficient to prevent direct impairment between wells located in a common source of supply or hydraulically connected sources of supply and to protect the public interest. Except as set forth in subsection (b), the following guidelines shall be used to determine the spacing required between wells permitted by the chief engineer in a common source of supply, unless it is determined by the chief engineer in any specific instance that the spacing guidelines set forth in this regulation are insufficient to prevent direct impairment or are not necessary to prevent direct impairment.

(b) Whenever an applicant proposes to divert water from a source of supply in a location where there is a significant hydraulic connection between the proposed source of supply and another source or sources of supply, the chief engineer shall determine the spacing necessary to prevent impairment and to protect the public interest on a case by case basis.

(c) Except as set forth in subsection (e) below, each well that is described in an application for a permit to appropriate water for beneficial use or for a term permit, excluding any domestic or temporary well, shall meet the minimum spacing requirements set out in paragraphs (1) and (2) below.

(1) The minimum distance from the well which is the subject of the application to all other senior authorized non-domestic and non-temporary wells in the same aquifer or a hydraulically connected aquifer shall be:

(A) four miles between wells whose common source of supply is the confined Dakota aquifer system;

(B) one-half mile between wells whose common source of supply is the unconfined Dakota aquifer system; and

(C) 1320 feet for wells whose common source of supply is any other aquifer.

(2) In addition to meeting the minimum spacing requirements of paragraph (1) above, the minimum distance from the well which is the subject of the application to all domestic wells, except where the domestic well owner has given the applicant written permission to reduce the spacing interval, shall be:

(A) one-half mile for wells whose common source of supply is the confined Dakota aquifer system;

(B) 1320 feet for wells whose common source of supply is the unconfined Dakota aquifer system; and

(C) 660 feet for wells whose common source of supply is any other aquifer.

(d) Except as provided in subsection (e), the location of a well or wells on an application to change the point of diversion under an existing water right shall either:

(1) meet the spacing requirements in paragraphs (c)(1) and (c)(2) above; or

(2) not decrease the distance to other wells or authorized well locations by more than 300 feet.

(e) This regulation shall not apply if the chief engineer has adopted another regulation, or issued an order

pursuant to K.S.A. 82a-1036 *et seq.*, specifying a different well spacing for the source of supply in which the proposed point of diversion is located.

(f) In the case of a battery of wells, the distance shall be measured from the geographic center of the points of diversion comprising the battery.

(g) If the proposed point of diversion does not meet the well spacing requirements in this regulation, the applicant shall be notified by the chief engineer in writing prior to dismissal that the requirements have not been met. The applicant shall then have 15 days to request time in which to submit additional information. Upon written request, the applicant shall be given a specified reasonable amount of time by the chief engineer to submit an engineering or similar type of hydrologic analysis to show that the spacing can be decreased without impairing existing rights or prejudicially and unreasonably affecting the public interest. The burden shall be on the applicant to make such a showing to the satisfaction of the chief engineer. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-711; effective May 31, 1994.)

K.A.R. 5-4-5. Approval of application for additional rate only. (a) Except as set forth in subsection (c), an application for a permit to appropriate water for beneficial use that requests only an increase in the authorized rate of diversion, and no net increase in maximum annual quantity, from a specific point of diversion already authorized by another water right or approval of application shall be exempt from complying with any safe yield, allowable appropriation, or similar type of criteria adopted by the chief engineer if both of the following conditions are met:

(1) The application requests only an increase in the authorized maximum rate of diversion of 15 percent or less.

(2) There has been no significant physical enlargement of the capacity of the original diversion works to divert water. If a well has been replaced, reconstructed, and reequipped in accordance with an approval of an application for change by the chief engineer pursuant to K.S.A 82a-708b and amendments thereto in substantially the same way that the original diversion works were constructed, that type of well shall not be considered to be a significant physical enlargement of the diversion works. Conversion to a battery of wells or adding an additional well shall be considered to be a significant physical enlargement of the capacity of the diversion works.

(b) Except as set forth in subsection (c), an application to increase the rate of diversion by more than 15 percent that requests no net increase in maximum annual quantity from a specific point of diversion already authorized by another water right or approval of application shall be exempt from complying with any safe yield, allowable appropriation, or similar type of criteria adopted by the chief engineer if the conditions in either paragraph (b)(1) or (2) are met:

(1)(A) The application was filed within the time authorized to perfect any water right authorizing that point of diversion.

(B) The application is filed to increase the authorized maximum rate of diversion to the rate the original diversion works were physically capable of diverting water under actual maximum operating conditions, or less.

(2) The appropriator demonstrates to the chief engineer that authorizing an increase in the rate of diversion meets the following criteria:

(A) Will not impair existing water rights;

(B) will not prejudicially and unreasonably affect the public interest; and

(C) will not substantially increase the consumptive use in violation of K.A.R. 5-5-3.

(c) If the chief engineer adopts a regulation pertaining to applications for additional rate only for a specific groundwater management district, or issues an order concerning that type of application pursuant to an intensive groundwater use control area (IGUCA) proceeding authorized by K.S.A. 82a-1036 et seq. and amendments thereto, the application for additional rate shall be processed by the chief engineer pursuant to the provisions of that regulation or IGUCA order. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-701(f), K.S.A. 1999 Supp. 82a-711, K.S.A. 82a-712, K.S.A. 82a-1036, K.S.A. 82a-1037, K.S.A. 1999 Supp. 82a-1038, K.S.A. 82a-1039, and K.S.A. 82a-1040; effective Sept. 22, 2000.)

K.A.R. 5-4-8. Custodial care of the state. (a) For any groundwater or surface water right placed in the custodial care of the state, the following criteria shall be met by the chief engineer:

(1) Not reappropriate the water authorized to be diverted by a water right in the custodial care of the state;

(2) continue to include the priority, terms, limitations, authorized rate and quantity, and other conditions of the water right in any analysis or action conducted for the

permitting, management, regulation, or administration of other water rights or applications to appropriate water;

(3) not declare the water right abandoned for the nonuse of water. Placement of the water right in the custodial care of the state shall be deemed to be due and sufficient cause for nonuse of a water right pursuant to K.S.A. 82a-718 and amendments thereto; and

(4) not dismiss the water right, unless the chief engineer determines that the geographic area in which the water right is located no longer meets the requirements of K.S.A. 2-1919(2), and amendments thereto, and reopens the area to new appropriations of water.

(b) A water right owner desiring to place a portion of an existing water right in the custodial care of the state shall request the division to divide the water right. Each portion of a divided water right shall be treated as a separate water right and administered accordingly. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(d) and K.S.A. 1999 Supp. 82a-718; effective Sept. 22, 2000.)

K.A.R. 5-5-1. Filing an application for change. (a) An application for approval to change the place of use, the point of diversion, the use made of water, or combinations thereof, filed pursuant to K.S.A. 82a-708b and amendments thereto, shall be made on a form prescribed by the chief engineer and shall include whatever information is required by the chief engineer to properly understand the proposed change in the place of use, the point of diversion, the use made of water or any combination of these.

(b) Before the application may be accepted for filing, the application shall be signed by at least one owner of the water right, or a duly authorized agent of an owner.

(c) Except as set forth in subsection (e), before any approval of an application can be granted, all of the water right owners, including their spouses, or a duly authorized agent of the owners of the water right, shall verify upon oath or affirmation that the statements contained in the application are true and complete.

(d) If one or more owners refuse to sign the application, or a written request is filed by one or more owners to withdraw their signatures from the application before the application is approved, the application shall be dismissed.

(e)(1) An application to change the location of a groundwater point of diversion that proposes to do only the following shall be signed by at least one owner of the approval of application or water right, or the duly authorized agent, who verifies upon oath or affirmation all of the items specified below in paragraph (e)(2):

(A) Move the location of the well 300 or fewer feet; and

(B) have the new well located on land owned by all the same owners as the owners of the original point of diversion.

(2)(A) The signer of the application for change has the authority to sign the application on behalf of all the owners.

(B) None of the ownership interests of any of the owners of the approval of application or water right will be

adversely affected if the application for change is approved as filed.

(C) If the application is not approved expeditiously, there will be substantial damage to property, public health, or safety. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-708b; modified, L. 1978, ch. 460, May 1, 1978; amended Sept. 22, 2000.)

K.A.R. 5-5-2. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-708b; effective May 1, 1980; revoked May 1, 1983.)

K.A.R. 5-5-3. Change in consumptive use. The extent of consumptive use shall not be increased substantially after a vested right has been determined or the time allowed in which to perfect the water right has expired, including any authorized extension of time to perfect the water right. (Authorized by K.S.A. 82a-706a, 82a-708b; effective May 1, 1983.)

K.A.R. 5-5-4. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-708b; effective May 1, 1980; revoked May 1, 1981.)

K.A.R. 5-5-5. Signatures required on change application. If more than one person is the owner of a water right, and an application is filed for a change in the place of use, point of diversion, use made of the water, or any combination thereof, only the signature(s) of the landowner(s) whose portion of the water right(s) is (are) involved in the change shall be required on the application. If the extent of each owners interest in the water right has not been legally determined, then all landowners holding an undetermined portion of the water right must sign the change application or the landowners must

submit an agreement signed by all landowners agreeing how the water right should be divided. (Authorized by K.S.A. 82a-706a, 82a-708b; effective May 1, 1980.)

K.A.R. 5-5-6. Failure to construct diversion works at authorized location. (a) If an application to appropriate water for beneficial use is approved by the chief engineer, the location of the point of diversion shall be limited to a specific tract of land and to within 300 feet of a point identified in distances measured in feet north and west from the southeast corner of the legal section.

(b) If the diversion works were not constructed at the location authorized for the point of diversion, but the appropriator can demonstrate to the satisfaction of the chief engineer that all of the following criteria have been met, the authorized location shall be corrected to the actual location of the point of diversion by a correctional order issued by the chief engineer:

(1) The original application was filed before January 1, 1978.

(2) The diversion works were constructed before the date the original application to appropriate water was signed.

(3) It was not discovered that the actual diversion works were not constructed at the authorized point of diversion until after the application was approved.

(4) The diversion works were constructed at a location that could have been approved at the time the original application was filed based on the criteria in effect at the time the original application was filed.

(c) An application for a change in point of diversion filed pursuant to K.S.A. 82a-708b and amendments thereto shall be approved by the chief engineer, authorizing the actual location where the diversion works were constructed and extending the time to construct the diversion works until the end of the calendar year in which the application to change the point of diversion was approved, if the diversion works were not constructed at the authorized location, but the appropriator can demonstrate to the satisfaction of the chief engineer that all of the following criteria have been met:

(1) The original application was filed with the chief engineer before January 1, 1978.

(2) The diversion works were completed after the application was filed, but within the time authorized to construct the diversion works.

(3) The diversion works were constructed within 1,320 feet of the authorized point of diversion.

(4) The diversion works were constructed at a location that could have been approved at the time that the original application was filed based upon the criteria in effect at the time the original application was filed.

(5) The change application meets the other criteria of K.S.A. 82a-708b and amendments thereto.

If the actual point of diversion is within a groundwater management district, the application shall be sent to the groundwater management district board for review and recommendation.

(d) The point of diversion shall be authorized at the actual location by approval of a new application to

appropriate water by the chief engineer if the diversion works were not constructed at the authorized location, but the appropriator can demonstrate to the chief engineer that all of the following criteria have been met:

(1) The original application was filed on or after January 1, 1978.

(2) The diversion works were subsequently completed within the time authorized to complete the diversion works.

(3) The diversion works were constructed within 1,320 feet of the authorized point of diversion.

(4) The time authorized to complete the diversion works has expired.

(5) There is no water available for a new appropriation to be approved at the location of the actual point of diversion.

(6) The application would have met all the criteria for a new application that were in effect at the time the original new application was filed.

If the actual point of diversion is within a groundwater management district, the application shall be sent to the groundwater management district board for review and recommendation. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-708b, and K.S.A. 82a-728; effective May 1, 1980; amended Sept. 22, 2000.)

K.A.R. 5-5-7. Waste of Water. Each person shall not commit a waste of water as defined in these regulations. Upon a finding by the chief engineer that waste of water has occurred, the chief engineer may suspend use of that

water right until the owner shows to the satisfaction of the chief engineer that the waste of water will no longer occur. (Authorized by K.S.A. 82a-706(a); implementing K.S.A. 82a-706; effective December 3, 1990.)

K.A.R. 5-5-8. Standards for approval of an application for a change in the place of use and a change in the use made of water. (a) Each application for a change in the place of use or the use made of water which will materially injure or adversely affect water rights or permits to appropriate water with priorities senior to the date the application for change is filed shall not be approved by the chief engineer.

(b) Each approval of a change application shall be conditioned by the chief engineer with the terms, conditions and limitations the chief engineer deems necessary to protect the public interest and enforce the terms of K.A.R. 5-5-3.

(c) As used in K.A.R. 5-5-3, "consumptive use" means gross diversions minus:

(1) waste of water, as defined in K.A.R. 5-1-1(cc); and

(2) return flows to the source of water supply:

(A) through surface water runoff which is not waste; and

(B) by deep percolation.

(d) The maximum annual quantity and maximum rate of diversion of water authorized by an approval of an application for a change in the use made of water shall not exceed the maximum annual quantity or maximum rate of diversion perfected at the time the application for change

in the use made of water is filed with the chief engineer. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-708b; effective November 28, 1994.)

K.A.R. 5-5-9. Criteria for the approval of an application for a change in the use made of water from irrigation to any other type of beneficial use of water. (a) The approval of a change in the use made of water from irrigation to any other type of beneficial use shall not be approved if it will cause the net consumptive use from the local source of water supply to be greater than the net consumptive use from the same local source of water supply by the original irrigation use based on the following criteria:

(1) The maximum annual quantity of water to be allowed by the change approval shall be the net irrigation requirement (NIR) for the 50% chance rainfall for the county of origin, as set forth in K.A.R. 5-5-12, multiplied by the maximum acreage legally irrigated under the authority of the water right in any one calendar year during the perfection period. For vested rights, the acreage used shall be the maximum acreage irrigated prior to June 28, 1945; or

(2) if the applicant establishes to the satisfaction of the chief engineer the need for more flexibility in the authorized annual quantity, the application may be approved subject to the following limits.

(A) The maximum annual quantity of water to be allowed by the change approval shall be the NIR for the 80% chance rainfall for the county of origin, as set forth in K.A.R. 5-5-12, multiplied by the maximum acreage legally irrigated in any one calendar year during the perfection

period. For vested rights the acreage used shall be the maximum acreage irrigated prior to June 28, 1945.

(B) The new type of beneficial use shall be further limited by a five year fixed allocation of water in which the NIR for a 50% chance rainfall for the county of origin, as set forth in K.A.R. 5-5-12, is multiplied by five times the maximum acreage lawfully irrigated in any one calendar year during the perfection period. For vested rights, the acreage used shall be the maximum acreage irrigated prior to June 28, 1945.

(C) An application for a term permit which will circumvent the five year allocation of water limit shall not be approved by the chief engineer.

(3) In determining whether the net consumptive use of water will be increased by the proposed change in the use made of water, the applicant shall be given credit by the chief engineer for any return flows from the proposed type of beneficial use which will return to the same local source of supply as the return flows from the originally authorized type of beneficial use as substantiated by the applicant to the satisfaction of the chief engineer by an engineering report or similar type of hydrologic analysis.

(4) The authorized quantity to be changed to the new type of beneficial use shall never exceed the maximum annual quantity authorized by the water right.

(5) If a water right which overlaps the authorized place of use of one or more other water rights, either in whole or in part, is being changed to a different type of beneficial use, the total net consumptive use of all water rights after the change is approved shall not exceed the

total net consumptive use of all of the rights before the change is approved.

(6) The approval for a change in the use made of water shall also be limited by that quantity reasonable for the use proposed by the change in the use made of water.

(b) Upon request of the applicant, the historic net consumptive use actually made during the perfection period, or prior to June 28, 1945 in the case of vested rights, under the water right proposed to be changed shall be considered by the chief engineer, but the burden shall be on the owner to document that historic net consumptive use with an engineering study, or an equivalent documentation and analysis, and demonstrate to the satisfaction of the chief engineer that the analysis submitted by the applicant is a more accurate estimate of the historic net consumptive use than the net consumptive use calculated using the methodology set forth in paragraph (a)(1).

(c) If the methods set forth in subsection (a) produce an authorized annual quantity of water which appears to be unrealistic and could result in impairment of other water rights, the chief engineer shall make a site-specific net consumptive use analysis to determine the quantity of water which was actually beneficially consumed under the water right. The quantity approved shall be limited to the quantity determined to be reasonable by the chief engineer's analysis. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-708b; effective November 28, 1994.)

K.A.R. 5-5-10. Partial changes in the use made of water from irrigation to another type of beneficial use. (a) In a case where an irrigation right is to be divided and only a portion of the rate and quantity will be changed

to a different use made of water, only that portion of the annual quantity of the water right being changed to a different type of beneficial use shall be reduced as necessary to prevent the net consumptive use from increasing substantially.

(b) The authorized place of use for the irrigation right shall generally be reduced in proportion to the reduction in annual quantity caused by the change. If the irrigator desires to retain more than his or her proportional allotment of acres after the change, the procedures outlined in K.A.R. 5-5-11(b)(2)(B)(ii) shall be followed to determine whether the irrigator shall be allowed to retain more acreage.

(c) The authorized rate of diversion shall be divided between the irrigation and the non-irrigation use. Any reasonable division of the rate by the parties shall be approved. The division of the maximum rate of diversion need not be proportional to the division of the quantity as long as the division of the rate of diversion is reasonable to divert each portion of the annual quantity of water after the division of the water right is made.

(d) The division of the annual quantity shall be made as follows:

(1) Step one.

(A) Multiply the net irrigation requirement (NIR) for the 50% chance rainfall for the county of origin, as set forth in K.A.R. 5-5-12, times the maximum number of acres irrigated in any one calendar year during the perfection period. For vested rights, the acreage used shall be the maximum acreage irrigated prior to June 28, 1945.

(B) This will result in the maximum quantity that could be changed to another type of beneficial use if the entire right were changed pursuant to K.A.R. 5-5-9(a)(1).

(2) Step two.

(A) Divide the annual quantity desired to be changed to the new use by the maximum quantity that could be changed if the entire right were changed.

(B) This will result in the percentage of the entire reduced right that will be changed to the new use. The remaining percentage of the current right can be retained by the irrigation water right owner.

(3) Step three.

(A) Multiply the remaining percentage times the total currently authorized quantity. This shall be the annual quantity of water which may be retained by the irrigation water right owner. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-708b; effective November 28, 1994.)

K.A.R. 5-5-11. Applications for change in place of use for irrigation purposes. (a) For the purpose of this regulation, "base acreage" means:

(1) the maximum number of acres actually legally irrigated in any one calendar year on or before December 31, 1994 if the perfection period expired on or before December 31, 1994 or the water right is a vested right; or

(2) if the perfection period expires after December 31, 1994, and the perfection period has not expired at the time the change application has been filed, the base

acreage shall be the number of acres authorized by the permit; or

(3) if the perfection period expires after December 31, 1994, and the perfection period has expired at the time the change application was filed, the base acreage shall be the maximum acreage legally irrigated in any one calendar year during the perfection period.

(4) Any year in which any of the terms, conditions and limitations of the water right or permit were violated shall not be used to determine base acreage.

(b) An application to change the authorized place of use for irrigation purposes which would permit the applicant to exceed the base acreage by 10 acres or 10 percent, whichever is less, shall not be approved by the chief engineer because it would result in a substantial increase in net consumptive use in violation of K.A.R. 5-5-3 except when one of the six following criteria are met.

(1) Identical places of use.

(A) The change application shall be filed only for the purpose of creating an identical place of use with another water right or rights;

(B) there shall not be a net increase in authorized acres;

(C) each water right involved in the proposed identical overlap in place of use shall be certified by the chief engineer prior to processing the change application if approval of the change application would authorize an increase in base acreage; and

(D) the total quantity authorized by all existing water rights and all permits involved shall be reasonable to irrigate the land authorized after the change in place of use is approved.

(2) Necessity to install more efficient irrigation system; limited acres and quantity.

(A) The change applicant shall submit information demonstrating to the satisfaction of the chief engineer that it is necessary to increase the base acreage so that a significantly more efficient irrigation delivery system may be installed. Types of crops to be grown or tillage practices used shall not be considered in deciding whether the proposed system is more efficient.

(B) If the chief engineer approves the application for a change in place of use pursuant to this subsection, the following limitations shall apply.

(i) The authorized quantity of water under the water right shall be limited to a 5 year fixed allocation, computed by dividing the net irrigation requirement (NIR), as set forth in K.A.R. 5-5-12, for the 50% chance rainfall for the county where the place of use is located, by an efficiency factor of 0.85, multiplying by the base acreage as determined in subsection (a) of this regulation, and then multiplying by 5. In any given year, the water right owner shall still be authorized to divert the maximum annual quantity authorized, provided that the 5 year allocation is not exceeded.

(ii) The maximum number of irrigated acres that shall be allowed under the proposed change in place of use shall be computed by multiplying the currently authorized annual quantity by 0.85 and dividing by the NIR, as set

forth in K.A.R. 5-5-12, for the 80% chance rainfall for the county where the place of use is located.

(iii) The approval of the change shall be conditioned so that the use of water in excess of the five year allocation shall result in a two year suspension of all water use under that water right and a subsequent restriction of the authorized place of use to the base acreage at a location specifically set forth in the change approval.

(3) Necessity to install a more efficient irrigation system; limited quantity.

(A) The groundwater management district in which the point of diversion is located shall agree to assume monitoring responsibility to ensure compliance with the conditions of the change approval;

(B) the applicant shall submit information demonstrating to the satisfaction of the chief engineer that it is necessary to increase the base acreage so that a significantly more efficient irrigation delivery system may be installed;

(C) the applicant shall submit a feasible operation plan demonstrating to the satisfaction of the chief engineer that the amount of water available for appropriation under that water right is reasonable to irrigate the number of acres requested to be irrigated; and

(D) the water right owner shall have no recent pattern of water use significantly in excess of the maximum annual quantity of water authorized.

(E) If the chief engineer approves the application for a change in place of use pursuant to this subsection, the following limitations shall apply.

(i) The authorized quantity of water under the water right shall be limited to a 5 year fixed allocation, computed by dividing the net irrigation requirement (NIR), as set forth in K.A.R. 5-5-12, for the 50% chance rainfall for the county where the place of use is located by an efficiency factor of 0.85, multiplying by the base acreage irrigated as determined in subsection (a) of this regulation, and then multiplying by 5. In any given year, the water right owner shall still be authorized to divert the maximum annual quantity authorized, provided that the 5 year allocation is not exceeded.

(ii) The approval of the change shall be conditioned so that the use of water in excess of the five-year allocation shall result in a two-year suspension of all water use under that water right and a subsequent restriction of the authorized place of use to the base acreage at a location specifically set forth in the change approval.

(4) Rotation of the irrigated land within the authorized place of use.

(A) The point of diversion is located outside a groundwater management district or the groundwater management district in which the point of diversion is located shall agree to assume monitoring responsibility to ensure compliance with the conditions of the change approval;

(B) the water right owner shall have no recent pattern of water use significantly in excess of the maximum annual quantity of water authorized; and

(C) approval of the change application shall result in a net increase in the number of acres authorized for

irrigation purposes solely for the purpose of rotation of the irrigated land within the authorized place of use.

(D) If the chief engineer approves the application for a change in place of use pursuant to this subsection, the following limitations shall apply.

(i) Approval of the change application shall be limited by the chief engineer so that the net acres physically irrigated in any one calendar year after the change approval shall not exceed the base acreage; and

(ii) the approval shall be conditioned so that the use of water on more than the maximum number of acres authorized to be irrigated in any one calendar year shall result in a two-year suspension of all water use under that water right and a subsequent restriction of the authorized place of use to the base acreage at a location specifically set forth in the change approval.

(5) Specific groundwater management district regulation.

The application shall meet the criteria in a regulation adopted by the chief engineer pursuant to K.S.A. 82a-1028(o) and K.S.A. 82a-706a specifically for changes in place of use for irrigation purposes for the groundwater management district in which the point of diversion is located.

(6) No increase in historic net consumptive use.

The applicant shall demonstrate to the satisfaction of the chief engineer, with an engineering report or similar type of hydrologic analysis, that the historic net consumptive use will not be increased substantially if the proposed change in place of use is approved.

(c) If the chief engineer determines that the application cannot be approved as filed, the applicant shall be notified in writing by the chief engineer prior to denial that the change application requirements have not been met and the reason for the proposed denial.

(1) In this written notice the chief engineer shall allow the applicant 15 days to request time in which to submit additional information to show why the application should be approved.

(2) Upon written request, the applicant shall be given a reasonable time specified by the chief engineer to submit an engineering report or similar type of hydrologic analysis to show that approval of the change application will not substantially increase the historic net consumptive use.

(3) The applicant shall have the burden of demonstrating to the satisfaction of the chief engineer that approval of the change application will not cause the historic net consumptive use to be increased substantially.

(d) Whether or not the time to perfect the water right has expired, including any authorized extensions of time, the application for a change in place of use to change the size of the authorized place of use for irrigation purposes may be approved without the certificate of appropriation being issued except as provided in subsection (b)(1)(C) of this regulation.

(1) If a certificate of appropriation has not been issued, the increase in base acreage shall be determined based on reliable information.

(2) The types of acceptable information shall include, but not be limited to, field inspection reports or U.S. department of agriculture records.

(e) A flow meter meeting the specifications adopted by the chief engineer, and installed and maintained in a manner satisfactory to the chief engineer, shall be required by the chief engineer in all cases where there is an increase in the base acreage authorized to be irrigated by the approval of the change in the place of use, except when:

(1) the application for change in place of use is filed solely to create an identical place of use with other water rights; and

(2) the total quantity authorized by all existing water rights and all permits to appropriate water that are involved equals or exceeds the NIR, as set forth in K.A.R. 5-5-12, in that county for a 50% chance rainfall divided by an irrigation efficiency of 0.85. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-708b; effective November 28, 1994.)

K.A.R. 5-5-12. Net irrigation requirements (NIR). The following amounts shall be used as the net irrigation requirements (NIR).

County	50% Chance Rainfall	80% Chance Rainfall
Allen	7.1" = 0.59'	9.9" = 0.83'
Anderson	6.1" = 0.51'	9.4" = 0.78'
Atchison	7.2" = 0.60'	10.3" = 0.86'
Barber	12.6" = 1.05'	14.6" = 1.22'
Barton	12.0" = 1.00'	14.4" = 1.20'

Bourbon	6.8" = 0.57'	9.6" = 0.80'
Brown	7.1" = 0.59'	10.6" = 0.88'
Butler	9.2" = 0.77'	12.0" = 1.00'
Chase	8.7" = 0.73'	11.4" = 0.95'
Chautauqua	8.6" = 0.72'	11.4" = 0.95'
Cherokee	7.0" = 0.58'	9.9" = 0.83'
Cheyenne	13.7" = 1.14'	15.4" = 1.28'
Clark	13.7" = 1.14'	15.7" = 1.31'
Clay	9.2" = 0.77'	12.2" = 1.02'
Cloud	10.3" = 0.86'	12.7" = 1.06'
Coffey	6.8" = 0.57'	9.9" = 0.83'
Comanche	13.0" = 1.08'	15.1" = 1.26'
Cowley	9.7" = 0.81'	12.3" = 1.03'
Crawford	7.0" = 0.58'	9.8" = 0.82'
Decatur	12.7" = 1.06'	14.8" = 1.23'
Dickinson	9.4" = 0.78'	12.3" = 1.03'
Doniphan	7.3" = 0.61'	10.3" = 0.86'
Douglas	6.8" = 0.57'	9.8" = 0.82'
Edwards	13.0" = 1.08'	15.1" = 1.26'
Elk	8.7" = 0.73'	11.3" = 0.94'
Ellis	12.2" = 1.02'	14.6" = 1.22'
Ellsworth	11.5" = 0.96'	13.7" = 1.14'
Finney	14.5" = 1.21'	16.3" = 1.36'
Ford	13.7" = 1.14'	15.7" = 1.31'
Franklin	5.8" = 0.48'	9.1" = 0.76'
Geary	8.4" = 0.70'	11.5" = 0.96'
Gove	13.1" = 1.09'	15.3" = 1.28'
Graham	12.4" = 1.03'	14.7" = 1.23'
Grant	14.9" = 1.24'	16.7" = 1.39'
Gray	13.8" = 1.15'	16.1" = 1.34'
Greeley	14.7" = 1.23'	16.5" = 1.38'
Greenwood	8.1" = 0.68'	11.1" = 0.93'

Hamilton	15.2" = 1.27'	16.9" = 1.41'
Harper	11.7" = 0.98'	14.0" = 1.17'
Harvey	10.2" = 0.85'	12.9" = 1.08'
Haskell	14.5" = 1.21'	16.4" = 1.37'
Hodgeman	13.4" = 1.12'	15.5" = 1.29'
Jackson	7.4" = 0.62'	10.5" = 0.88'
Jefferson	7.0" = 0.58'	10.1" = 0.84'
Jewell	10.6" = 0.88'	13.1" = 1.09'
Johnson	6.6" = 0.55'	9.5" = 0.79'
Kearny	14.9" = 1.24'	16.6" = 1.38'
Kingman	11.7" = 0.98'	14.0" = 1.17'
Kiowa	13.2" = 1.10'	15.1" = 1.26'
Labette	7.3" = 0.61'	10.3" = 0.86'
Lane	13.7" = 1.14'	15.7" = 1.31'
Leavenworth	7.0" = 0.58'	9.9" = 0.83'
Lincoln	11.3" = 0.94'	13.6" = 1.13'
Linn	5.6" = 0.47'	9.0" = 0.75'
Logan	13.9" = 1.16'	15.8" = 1.32'
Lyon	7.5" = 0.63'	10.5" = 0.88'
Marion	9.6" = 0.80'	12.2" = 1.02'
Marshall	8.7" = 0.73'	11.4" = 0.95'
McPherson	10.8" = 0.90'	13.1" = 1.09'
Meade	14.3" = 1.19'	16.1" = 1.34'
Miami	5.0" = 0.42'	9.0" = 0.75'
Mitchell	10.8" = 0.90'	13.3" = 1.11'
Montgomery	8.1" = 0.68'	10.9" = 0.91'
Morris	8.5" = 0.71'	11.4" = 0.95'
Morton	15.4" = 1.28'	17.1" = 1.43'
Nemaha	7.8" = 0.65'	10.9" = 0.91'
Neosho	7.1" = 0.59'	10.2" = 0.85'
Ness	13.3" = 1.11'	15.3" = 1.28'

Norton	12.3" = 1.03'	14.4" = 1.20'
Osage	7.0" = 0.58'	9.9" = 0.83'
Osborne	11.7" = 0.98'	13.8" = 1.15'
Ottawa	10.5" = 0.88'	12.9" = 1.08'
Pawnee	12.7" = 1.06'	14.9" = 1.24'
Phillips	11.7" = 0.98'	14.0" = 1.17'
Pottawatomie	8.1" = 0.68'	11.1" = 0.93'
Pratt	12.6" = 1.05'	14.6" = 1.22'
Rawlins	13.2" = 1.10'	15.1" = 1.26'
Reno	11.4" = 0.95'	13.8" = 1.15'
Republic	10.0" = 0.83'	12.6" = 1.05'
Rice	11.5" = 0.96'	13.8" = 1.15'
Riley	8.5" = 0.71'	11.4" = 0.95'
Rooks	12.0" = 1.00'	14.3" = 1.19'
Rush	12.6" = 1.05'	14.8" = 1.23'
Russell	11.3" = 0.94'	14.1" = 1.18'
Saline	10.8" = 0.90'	13.1" = 1.09'
Scott	14.0" = 1.17'	15.9" = 1.33'
Sedgwick	10.7" = 0.89'	13.1" = 1.09'
Seward	14.5" = 1.21'	16.4" = 1.37'
Shawnee	7.4" = 0.62'	10.2" = 0.85'
Sheridan	12.9" = 1.08'	15.0" = 1.25'
Sherman	14.1" = 1.18'	15.7" = 1.31'
Smith	11.4" = 0.95'	13.6" = 1.13'
Stafford	12.3" = 1.03'	14.5" = 1.21'
Stanton	15.6" = 1.30'	17.2" = 1.43'
Stevens	14.8" = 1.23'	16.8" = 1.40'
Sumner	10.3" = 0.86'	13.2" = 1.10'
Thomas	13.5" = 1.13'	15.4" = 1.28'
Trego	12.9" = 1.08'	15.0" = 1.25'
Wabaunsee	7.8" = 0.65'	10.7" = 0.89'
Wallace	14.3" = 1.19'	16.1" = 1.34'

Washington	9.2" = 0.77'	12.0" = 1.00'
Wichita	14.4" = 1.20'	16.3" = 1.36'
Wilson	8.0" = 0.67'	10.7" = 0.89'
Woodson	7.4" = 0.62'	10.4" = 0.87'
Wyandotte	7.0" = 0.58'	9.8" = 0.82'

(Authorized by K.S.A. 82a-706a; implementing K.S.A. 1993 Supp. 82a-708b; effective November 28, 1994.)

K.A.R. 5-5-13. Relocation of alluvial wells. If an authorized point of diversion is a well that has as its source of supply an alluvium in a reach of a basin that is fully appropriated or closed to new appropriations, the approval of a change in point of diversion, and any subsequent approvals of changes in points of diversion, shall not authorize the distance between the well and the centerline of the stream to be decreased by more than 10 percent since the time the source of supply became fully appropriated or was closed to new appropriations. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-708b; effective Sept. 22, 2000.)

K.A.R. 5-5-14. Duties of owners of approvals of applications and water rights. (a) All of the owners of an approval of application or a water right shall be responsible for taking all legally required actions necessary to maintain the validity of the approval of application or water right, including the filing of statutorily required fees, reports, and applications.

(b)(1) Unless the approval of application or the water right has been severed from the authorized place of use, except as set forth in paragraph (b)(2), all of the owners of the authorized place of use shall be considered to be the owners of the approval of application or the water right.

(2) Unless the chief engineer has documentation to the contrary, an approval of application or water right for municipal use shall be considered to be owned by the entity owning and operating the water distribution system. A water right for an irrigation district shall be considered to be owned by the irrigation district. (Authorized by and implementing K.S.A. 82a-706a; effective Sept. 22, 2000.)

K.A.R. 5-5-16. Additional wells. (a) An application for approval to change the point of diversion to add an additional point of diversion to divert groundwater, by either constructing a new well or moving a portion of a water right to a well that has previously been authorized by the chief engineer, shall not be approved unless it meets the following requirements:

(1) The provisions of K.S.A. 82a-708b, and amendments thereto, and any applicable regulations adopted by the chief engineer shall be met.

(2) The total maximum quantity of water authorized to be diverted each calendar year by the original well or wells, and the additional well or wells, shall not exceed any of the following limits:

(A) The maximum annual quantity of water that has been perfected;

(B) the maximum annual quantity of water authorized to be diverted before approval of the change; or

(C) the maximum consumptive use during the perfection period as required by K.A.R. 5-5-3 and as specified in either paragraph (a)(2)(C)(i) or (ii):

(i) If the water right authorizes the use of water for irrigation use, the consumptive use shall be presumed to not be increased in violation of K.A.R. 5-5-3 if the maximum annual quantity requested does not exceed the quantity in acre-feet calculated by use of the following formula: multiply the maximum number acres legally irrigated in any one year during the perfection period by the 80 percent chance net irrigation requirements (N.I.R.), as set forth in K.A.R. 5-5-12 expressed in acre-feet, and divide that number by a delivery efficiency of 0.85.

(ii) If the beneficial use authorized is not irrigation, the net consumptive use during the perfection period shall be determined using the best information available.

(3) The total maximum rate of diversion that may be authorized for the original well or wells and the additional well or wells shall not be greater than the total maximum rate of diversion that could have been diverted from the original well or wells if they were currently being replaced by new wells at substantially the originally authorized location or locations in the same local source of supply. A reasonable value for the maximum rate of diversion shall be one of the following:

(A) The total rate of diversion based on a current water flow rate test done on the point or points of diversion; or

(B) a value based on a valid hydraulic analysis submitted by the applicant showing the current capacity of the aquifer to yield water at the currently authorized point or points of diversion.

(4) A condition shall be placed on the approval of the application for change authorizing the additional well or

wells that provides that, for the sole purpose of administering wells concerning direct impairment, the additional well or wells shall be considered to have the priority of the date the application was filed to add the additional well or wells.

(b) The applicant shall submit the following information:

(1) A well completion log of the original well or a stratigraphic log of a test hole located within 300 feet of the original well;

(2) the depth of the original well;

(3) the current depth to the static water level at the original well;

(4) a stratigraphic log of a test hole located within 300 feet of the proposed location of each of the proposed additional well or wells; and

(5) any additional information that the chief engineer needs to understand the nature of the proposed additional well or wells.

(c) The proposed additional well or wells shall meet one of the following conditions:

(1) Meet the well spacing requirements to all other wells with a priority earlier than the date the change application was filed; or

(2) if a hydraulic analysis shows that the approval of the proposed additional well within 300 feet of the currently authorized well location will neither impair any water rights senior to the date the application for change was filed nor prejudicially and unreasonably affect the

public interest, be located within a 300-foot radius of one of the wells, or the geocenter if the currently authorized point of diversion is a battery of wells, authorized pursuant to the water right upon which the change application has been filed.

(d) Each point of diversion authorized by an approval of an application for change for an additional well shall have a specific assignment of a maximum instantaneous rate of diversion and a maximum annual quantity of water.

(e) Each well authorized by a water right that has been changed under the provisions of this regulation shall be equipped with a separate water flowmeter that meets or exceeds the specifications for water flowmeters adopted by the chief engineer.

(f) Each approval of an additional well or wells shall have a condition that reserves jurisdiction for the chief engineer to review the approval of the additional well or wells at intervals of no fewer than five years, and not more than 10 years, to determine if the total annual quantity of water actually being withdrawn by all wells authorized by the approval of an application for change is exceeding the total annual quantity of water that could have been physically withdrawn if the additional well or wells had not been approved. If the chief engineer determines during the review that the total annual quantity being withdrawn by all the wells, including the additional wells, exceeds the total annual quantity of water that could have been physically withdrawn by the original well or wells, the total maximum annual quantity that can be withdrawn by all the wells shall be reduced by the chief engineer to the total maximum annual quantity that could have been

physically withdrawn by the original well or wells. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-701(f) and K.S.A. 1999 Supp. 82a-708b; effective Sept. 22, 2000.)

K.A.R. 5-6-1. Application proposing storage, contents. Any person intending to store water may make application to the chief engineer in the same manner as any other person making application for permit to appropriate water for beneficial use. The application shall set forth the same general information as any other application for permit to appropriate water for beneficial use and, in addition, shall be accompanied by information to show:

(a) The area-capacity data of the reservoir in which the water is to be stored.

(b) The drainage area.

(c) The names and mailing addresses of the owners of lands that will be inundated by water accumulated in the reservoir.

(d) Any additional information as may be required by the chief engineer for a proper understanding of the proposed appropriation and storage of water. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-6-2. Storage of water in watershed district reservoirs. When a person makes application for permit to appropriate water for beneficial use proposing the storage of water in a watershed district reservoir, the application shall be accompanied by one of the following:

(a) A copy of an agreement or letter from the board of directors of the watershed district that states it was

mutually agreed and understood at the time an easement was granted by the landowner that the landowner was to have the use of space in the sediment pool to store the water to which he or she might be entitled under the water appropriation act.

(b) A copy of a resolution by the board of directors that shows, as of a certain date, the board allocated or gave to the landowner all or a specified part of the sediment pool for the storage of water in accordance with the water appropriation act. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-6-3. Potential net evaporation. (a) The Kansas department of agriculture, division of water resources' map titled "potential net evaporation, in inches, for Kansas," dated September 6, 1996, is hereby adopted by reference for the purpose of determining potential net evaporation from a free water surface.

(b) The values on the map shall be used in all situations in which determination of potential net evaporation from a free water surface is necessary, including the following:

(1) Calculating the maximum annual quantity of water allowed to be appropriated for the storage of surface water in a reservoir;

(2) computing the annual amount of evaporation that will be caused by exposing the groundwater table;

(3) calculating the quantity of evaporation from surface water or exposed groundwater that will be used to determine annual water use; and

(4) determining the maximum annual quantity of water that is perfected pursuant to K.S.A. 82a-714 and amendments thereto.

(c) The values shown on the map shall be used unless the applicant provides, or the chief engineer has available, better or more site-specific data concerning potential net evaporation. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 1999 Supp. 82a-711, and K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-6-4. Determination of potential annual runoff. (a) Unless the applicant for an approval of application supplies, or the chief engineer has available, better or more site-specific data, the potential annual runoff shall be determined using the following:

(1) A 20 percent chance of occurrence of runoff by extrapolating from the "annual yield of runoff" graph of the United States department of agriculture, natural resources conservation service, national engineering handbook series, part 650, engineering field handbook, EFM notice KS-38, dated December 12, 1991, which is adopted by reference;

(2) the soil cover complex number of the drainage basin, using the "generalized soil cover complex number" map of Kansas produced by the Kansas department of agriculture, division of water resources, dated August 1999, which is hereby adopted by reference;

(3) the normal annual precipitation in the watershed as set forth in K.A.R. 5-6-12; and

(4) the area of the watershed of the reservoir determined by using a United States geological survey 7½-minute topographic map.

(b) In computing the potential annual runoff of the watershed of the reservoir, if the quantity of water applied for, or authorized by, prior upstream surface water and groundwater applications, approvals of applications, and existing water rights within the watershed of the reservoir will significantly decrease the potential annual runoff available for appropriation in the reservoir, the impact of those rights on the potential annual runoff shall be subtracted from the total computed potential annual runoff in order to determine the potential annual runoff available. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e) and K.S.A 1999 Supp. 82a-711; effective Sept. 22, 2000.)

K.A.R. 5-6-5. Maximum reasonable annual quantity for storage of water for beneficial use in a reservoir. The maximum reasonable annual quantity of water that may be authorized for appropriation by the chief engineer for diversion and storage in a reservoir shall be limited to the maximum of either of the following:

(a) The potential annual runoff; or

(b) the total of the following:

(1) A three-year supply of water to be rediverted for all authorized beneficial uses; and

(2) a three-year supply of water for indirect use subject to the following limitations:

(A) A maximum of three years of indirect use shall be authorized for each reservoir as a whole; and

(B) If the maximum annual quantity of water requested for rediversion exceeds the reservoir capacity, the maximum annual quantity of water authorized to be diverted and stored in any one year shall not exceed the total of the following:

(i) The annual quantity of water rediverted for beneficial use;

(ii) the reservoir capacity; and

(iii) one year of indirect use from the reservoir. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 1999 Supp. 82a-711, and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-6-6. Initial filling and refilling of a reservoir. (a) The initial filling of a reservoir that has a capacity that exceeds the maximum annual quantity of water authorized shall be authorized by a special condition on the approval of application.

(b) Each refilling of a reservoir after the release of water for maintenance or similar reasons shall be required to be authorized by a term permit if the reservoir capacity exceeds the maximum annual quantity authorized. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 1999 Supp. 82a-711, and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-6-7. Determination of average annual potential net evaporation loss. The average annual potential net evaporation loss shall be determined by multiplying the surface area of the reservoir at the top of the reservoir capacity times the value for average annual potential net evaporation, as set forth in K.A.R. 5-6-3, for the township in which the point of diversion is located.

(Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 1999 Supp. 82a-711, and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-6-8. Determination of average annual seepage loss from a reservoir. Average annual seepage loss from a reservoir shall be determined by the chief engineer based on relevant, credible information furnished by the applicant. If no relevant, credible information is supplied by the applicant, it shall be assumed by the chief engineer that there is no seepage loss. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 1999 Supp. 82a-711, and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-6-9. Administration of surface water stored in a reservoir. Water lawfully stored within any reservoir authorized to store water for subsequent beneficial use shall not be subject to administration unless senior water right holders downstream of the reservoir make an appropriate request to have water bypassed to satisfy their senior water right within two weeks of the runoff event, or any other time frame in which inflow to the reservoir could reasonably have been expected to be available to the downstream senior water right if the reservoir had not impounded the water. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706b; effective Sept. 22, 2000.)

K.A.R. 5-6-10. Authorized place of use for stored surface water. The approval of application shall limit the authorized place of use to the actual location where the water will be put to beneficial use. If the authorized use is for recreational use within the reservoir only, the authorized place of use shall not exceed the size and location of

the surface area of the reservoir at the elevation of the top of the principal spillway. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711 and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-6-11. Reasonable rate of diversion for storage of surface water in a reservoir. Each approval of application shall limit the rate of diversion for storage of surface water in a reservoir to all natural flows not necessary to satisfy all of the following:

(a) Senior water rights;

(b) senior approvals of applications;

(c) senior water reservation rights; and

(d) senior minimum desirable stream flows pertaining to the use of water from the same source of water supply. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-6-12. Average annual precipitation. (a) The Kansas department of agriculture, division of water resources' map titled "normal annual precipitation, by township, 1961-1990," dated September 29, 1999, is hereby adopted by reference for the purpose of determining average annual precipitation.

(b) The data on the map shall be used in all situations in which the determination of average annual precipitation is necessary, including calculating the maximum annual quantity of water allowed to be appropriated for the storage of surface water in a reservoir.

(c) The values shown on the map shall be used unless the applicant provides, or the chief engineer has

available, better or more site-specific data concerning average annual precipitation. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711; effective Sept. 22, 2000.)

K.A.R. 5-6-13. Water level measurement tube specifications. (a) The Kansas department of agriculture, division of water resources' document titled "specifications for water level measurement tube," dated November 5, 1999, is hereby adopted by reference.

(b) If a water level measurement tube is required by the chief engineer to be installed, the required water level measurement tube shall be installed in accordance with the specifications for water level measurement tubes adopted by the chief engineer. These requirements are in addition to those made by the Kansas department of health and environment pursuant to the groundwater exploration and protection act, K.S.A. 82a-1201 et seq., and amendments thereto.

(c) As long as the well is permitted, the water level measurement tube shall be maintained in a satisfactory condition. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706c; effective Sept. 22, 2000.)

K.A.R. 5-6-14. Irrigation with effluent from a confined feeding facility lagoon. An individual who irrigates with effluent pumped from a confined feeding facility lagoon or runoff retention pit shall not be required to have an approval of application pursuant to K.S.A. 82a-701 et seq. and amendments thereto, unless there are more than 15 acre-feet of average annual runoff meeting the following criteria:

(1) Is generated from outside of the confined feeding facility;

(2) is impounded in the lagoon or runoff retention pit; and

(3) is used for irrigation purposes. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-705 and 82a-707(a); effective Sept. 22, 2000.)

K.A.R. 5-6-15. Drainage basin boundaries. (a) The following electronic data files, all dated August 23, 1999, prepared by the division of water resources, Kansas department of agriculture, using data developed by the United States geological survey and the natural resource conservation service, are hereby adopted by reference by the chief engineer for the purpose of defining the boundaries of the 62 drainage basins in Kansas:

(1) dwrbasins.dbf;

(2) dwrbasins.sbn;

(3) dwrbasins.sbx;

(4) dwrbasins.shp; and

(5) dwrbasins.shx.

(b) The electronic data files described in subsection (a) shall be used in all situations in which determination of the basin boundaries is necessary.

(c) The boundaries shown in the electronic data files shall be used unless the applicant provides, or the chief engineer has available, better or more site-specific data concerning the actual drainage basin boundaries. (Authorized by K.S.A. 82a-706a; implementing K.S.A.

1999 Supp. 82a-711 and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-7-1. Due and sufficient cause for non-use. (a) The following circumstances shall be considered "due and sufficient cause", as used in K.S.A. 82a-718:

(1) Adequate moisture is provided by natural precipitation for production of crops normally requiring full or partial irrigation within the region of the state in which the place of use is located;

(2) a right has been established or is in the process of being perfected for use of water from one or more preferred sources in which a supply is available currently but is likely to be depleted during periods of drought;

(3) water is not available from the source of water supply for the authorized use at times needed;

(4) water use is temporarily discontinued by the owner for a definite period of time to permit soil, moisture and water conservation, as documented by:

(A) furnishing to the chief engineer a copy of a contract showing that land which has been lawfully irrigated with a water right which has not been abandoned is enrolled in a multi-year federal or state conservation program which has been approved by the chief engineer;

(B) enrolling the water right in the water right conservation program pursuant to K.A.R. 5-7-4; or

(C) any other method acceptable to the chief engineer which can be adequately documented by the owner in advance.

(5) management and conservation practices are being applied which require the use of less water than authorized. If a conservation plan has been required by the chief engineer, the management and conservation practices used shall be consistent with the conservation plan approved by the chief engineer to qualify under this subsection;

(6) the chief engineer has previously approved the placement of the point of diversion in a standby status pursuant to K.A.R. 5-1-2;

(7) physical problems exist with the point of diversion, distribution system, place of use, or the operator. This circumstance shall constitute due and sufficient cause only for a period of time reasonable to correct the problem;

(8) conditions exist beyond the control of the owner which prevent access to the authorized place of use or point of diversion, as long as the owner is taking reasonable affirmative action to gain access;

(9) an alternate source of water supply was not needed and was not used because the primary source of supply was adequate to supply the needs of the water right owner. The owner shall maintain the diversion works on the alternate source of supply in a condition that will allow the owner to effectively use the alternate source of supply in a timely manner; and

(10) any other reason constituting due and sufficient cause as determined by the chief engineer.

(b) In order to constitute due and sufficient cause for non-use of water, the reason purporting to constitute due

and sufficient cause must have in fact prevented, or made unnecessary, the authorized beneficial use of water.

(c) Any year of non-use for which the chief engineer finds that due and sufficient cause exists, shall be considered to interrupt the successive years of non-use for which due and sufficient cause does not exist.

(d) Once a verified report of the chief engineer, or the chief engineer's authorized representative, is made a matter of record at a hearing held pursuant to K.S.A. 82a-718, which establishes non-use of a water right for three or more successive years, the water right owner shall have the burden of showing that there have not been three or more successive years of non-use without due and sufficient cause. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-718, modified, L. 1978, ch. 460, May 1, 1978; amended May 1, 1986; amended May 31, 1994.)

K.A.R. 5-7-2. Waiver of hearing. The owner of a water right may waive any hearing on the questions of abandonment and termination of such right by letter to the chief engineer requesting that it be terminated and its priority forfeited. In the event of such waiver the chief engineer shall cause the termination and forfeiture of priority date to be made a matter of record in his office and shall notify the owner of the water right of his or her action by regular mail. (Authorized by K.S.A. 82a-706a; modified, 1978 HCR 5073, May 1, 1978.)

K.A.R. 5-7-3. (Authorized by K.S.A. 82a-706a; modified, L. 1978, ch. 460, May 1, 1978; revoked May 31, 1994.)

K.A.R. 5-7-4. Water rights conservation program. (a) Enrollment in the water rights conservation program (WRCP) approved by the chief engineer, and continued

compliance with the WRCP shall constitute due and sufficient cause for nonuse pursuant to K.S.A. 82a-718, and amendments thereto, and K.A.R. 5-7-1 during the time the water right is enrolled in the WRCP.

(b) In order to qualify for enrollment in the WRCP, the following conditions shall be met:

(1) The point of diversion shall be located in either of the following locations:

(A) In an area that is closed to new appropriations of water, except for temporary permits, term permits, and domestic use; or

(B) in some other area designated by the chief engineer as an area where it would be in the public interest to allow water rights to be placed in the WRCP. In areas within the boundaries of a groundwater management district, the recommendations of the board of the district shall be taken into consideration by the chief engineer.

(2) Each of the owners of the water right shall agree to totally suspend all water use authorized by that water right for the duration of the contract.

(3) The owner or owners of the water right shall sign a contract with the chief engineer, or the chief engineer's authorized representative, before placing the water right into the WRCP. The contract shall be binding on all successors in interest to the water right owner.

(4) Only an entire water right may be placed into the WRCP. If a portion of a water right has been abandoned, the portion that is still in good standing may be enrolled in the WRCP. If a water right is administratively divided by

the chief engineer, each portion of a formally divided water right shall be considered to be an entire water right for the purpose of this regulation.

(A) If at least five successive years of nonuse have occurred before application for enrollment in the WRCP, a determination of whether or not that water right is subject to abandonment before entry into the program, including an analysis of any reasons given that might constitute due and sufficient cause for nonuse, shall be made by the chief engineer.

(B) If, after review of the information, it appears that the right has been abandoned, the statutory procedures, including the right to a hearing, shall be followed to determine whether or not it has been abandoned.

(5) Only the portion of a water right in good standing at the time of application for enrollment may be entered into the WRCP.

(c) Other obligations, responsibilities, and aspects of enrollment in the WRCP program shall include the following:

(1) Water rights shall originally be placed into the WRCP for a definite period of calendar years of no fewer than five and no more than ten. The owner of the water right may apply for renewal of the contract for a period not to exceed 10 years. Applications for renewal shall be subject to the approval of the chief engineer. In determining whether or not to approve the renewal, the following factors shall be taken into account by the chief engineer:

(A) The hydrologic conditions in the vicinity of the point of diversion;

(B) the effect of renewal on the public interest; and

(C) any other relevant information.

(2) The water right owner or operator shall not be required to maintain the diversion works or delivery system during the period of the WRCP contract. If the pump is removed from a well, the well shall be properly capped or sealed during the contract. These requirements are in addition to those made by the Kansas department of health and environment pursuant to the groundwater exploration and protection act, K.S.A. 82a-1201 et seq., and amendments thereto.

(3) A certificate determining the extent to which a water right has been perfected shall be issued by the chief engineer before entering the water right into the WRCP if all of the following conditions are met:

(A) An applicant has a permit to appropriate water for beneficial use and has perfected all, or any portion, of the water right authorized by the permit.

(B) The time in which to perfect the water right has expired, including any authorized extensions of time.

(C) A field inspection has been completed.

(4) If the time to perfect the water right, or any authorized extension of it, has not expired, enrollment in the WRCP shall be considered as suspending the time to perfect. Upon expiration of the WRCP contract pertaining to this water right, the time to perfect shall again commence, and the applicant shall be required to perfect the water right within the remainder of the time allowed to perfect, or any authorized extension of that time.

(5) Each year after authorized enrollment in the WRCP, the water use correspondent shall indicate on the water use report that no water was used because the water right was enrolled in the WRCP.

(6) If the owner breaches, or causes or allows a breach of, the WRCP contract with the chief engineer, each year of nonuse between the effective date of the contract and the date of the breach shall be counted as years of nonuse without due and sufficient cause for the purpose of determining whether or not the water right has been abandoned pursuant to the provisions of K.S.A. 82a-718, and amendments thereto. Before this penalty is imposed, the owner shall be given an opportunity to show either of the following:

(A) A breach of contract did not occur.

(B) A breach occurred, but either was minor or has been cured, and should not constitute grounds for imposing the penalty. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706, K.S.A. 82a-713, K.S.A. 1999 Supp. 82a-714, and K.S.A. 1999 Supp. 82a-718; effective July 1, 1994; amended Sept. 22, 2000.)

K.A.R. 5-7-4a. Conservation reserve program. (a) Enrollment of all, or part of, the authorized place of use in the conservation reserve program (CRP) shall not be considered good cause to extend the time to construct the diversion works.

(b) If an authorized place of use has been placed into the CRP after the diversion works have been completed but before the time to perfect the water right has expired, the appropriator may request and receive an extension of time to perfect the water right for the length of time that

the authorized place of use is enrolled in the CRP program, plus the length of time remaining to perfect the water right, if all of the following conditions are met:

(1) The diversion works were properly completed within the time allowed by the approval of application.

(2) The time to perfect the water right as set forth in the approval of the application has not expired at the time the request for the extension is filed.

(3) The appropriator furnishes the chief engineer with a copy of the CRP contract, including the aerial photograph designating which land has been placed into the CRP program. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-713 and K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-7-5. Reduction of an existing water right. (a) In order to have an approval of application or water right reduced, the water right owner may file, at any time, a request to reduce any of the following:

(1) The authorized maximum annual quantity of water;

(2) the authorized maximum rate of diversion;

(3) the authorized place of use;

(4) the authorized points of diversion;

(5) the types of beneficial use; or

(6) any combination of paragraphs (a)(1) through (a)(5).

(b) The request to reduce a water right shall be filed on a form prescribed by the chief engineer.

(c) The request to reduce shall be submitted in proper form and shall include the following information:

(1) Except as set forth in subsection (d) below, notarized signatures of all water right owners that would be required by K.A.R. 5-5-1 to sign an application for change under K.S.A. 82a-708b and amendments thereto;

(2) a clear description of which portion or portions of the approval of application or water right are proposed to remain;

(3) a statement that all of the owners of the approval of application or water right are waiving any right they might have to a hearing concerning the dismissal or abandonment of any portion of the approval of application or water right that they are requesting to have removed; and

(4) any other information requested by the chief engineer.

(d) A request solely to reduce the authorized place of use that will not affect the approval of application or water right in any other way shall be only required to be signed only by all of the owners of the authorized place of use that is proposed to be deleted.

(e) A reasonable request to reduce an approval of application or water right that is submitted in proper form shall be approved by the chief engineer unless it will cause the impairment of existing water rights or prejudicially and unreasonably affect the public interest. If the request to reduce the water right or approval of application is to remove a point of diversion, the approval shall reduce only

that maximum annual quantity of water and maximum rate of diversion associated with the authorized point of diversion that is removed.

(f) A request to reduce an existing water right shall not be considered to be an application for a change pursuant to K.S.A. 82a-708b and amendments thereto, so no application fee shall be required. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706 and 82a-721; effective Sept. 22, 2000.)

K.A.R. 5-8-1. Certification of a water right. Prior to the issuance of a certificate of appropriation by the chief engineer pursuant to an application under which water has been applied to the land of more than one owner, these landowners shall be allowed an opportunity to submit to the chief engineer an agreement signed by all landowners involved recommending how the water right should be divided among them. (Authorized by K.S.A. 82a-706a, 82a-714; effective May 1, 1980.)

K.A.R. 5-8-2. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-712, 82a-714; effective May 1, 1980; revoked May 1, 1981.)

K.A.R. 5-8-3. Perfection; multiple water rights. (a) The total maximum annual quantity of water that can be perfected by all water rights authorized to divert water to the same authorized place of use, shall be limited to the maximum quantity of water actually physically and legally diverted and applied to beneficial use on the common authorized place of use during any one calendar year during the perfection period for the water right being certified.

(b) The junior water right shall be limited by means of a limitation clause in the certificate so that the authorized annual quantity of water for the junior water right, when combined with all senior water rights authorized to apply water to beneficial use on the common authorized place of use, does not exceed either of the following standards:

(1) The annual quantity of water reasonable for the type of beneficial use made of the water; and

(2) the total annual quantity of water legally diverted by all water rights to the common authorized place of use during any one calendar year during the perfection period of the junior water right.

(c) The limitation clause on the junior water right being certified shall not restrict the total annual quantity authorized to be diverted to the authorized place of use to less than the total annual quantity of water authorized by the senior water right or water rights for beneficial use on the common authorized place of use.

(d) The owner whose water right is being certified shall be sent a draft certificate showing the maximum rate of diversion and maximum annual quantity of water that are being proposed for the certificate. The water right owner shall be given a reasonable time period of no fewer than 30 days to comment on the draft certificate and to provide any additional information concerning the water diverted and applied to beneficial use on the authorized place of use during the perfection period in accordance with the terms, conditions, and limitations of the approval of application, and all other water rights and approvals of applications authorized to divert water to the common authorized place of use.

(e) In certifying a water right with a priority date before the effective date of this regulation, the provisions of subsection (a) shall be followed to the extent possible. If sufficient information is not available to make the determination described in subsection (a), the best information available shall be utilized by the chief engineer to determine the quantity of water applied to the authorized place of use during any one calendar year during the perfection period under the authority of the approval of application being certified and all other water rights. The standard set forth in paragraph (b)(1) shall be applied, even if sufficient information is not available to make the determination described in subsection (a). (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 82a-713, and K.S.A. 1999 Supp. 82a-714(a); effective Sept. 22, 2000.)

K.A.R. 5-8-4. Construction of diversion works. (a) A reasonable period of time for construction of diversion works shall be not less than one full year following the approval of the application to appropriate water. If a person demonstrates that a reasonable long-term schedule for development of diversion works or other infrastructure is in the public interest, that information shall be taken into consideration by the chief engineer in determining a reasonable period of time for the construction of diversion works.

(b) For good cause shown by the applicant, a reasonable extension of time to construct the diversion works shall be allowed by the chief engineer, if the request for extension is filed pursuant to the requirements of K.A.R. 5-3-7 and is accompanied by the statutorily required filing fee.

(c) If the total time allowed to construct the diversion works has been more than 16 months and fewer than 24 months, an extension of time shall be granted by the chief engineer only if the applicant meets the following criteria:

(1) Demonstrates good cause;

(2) provides a copy of a contract with the well driller or other information substantiating the intent to proceed to complete the construction of the diversion works in an expeditious manner;

(3) files the request for extension pursuant to the requirements of K.A.R. 5-3-7; and

(4) submits the statutorily required filing fee.

(d) If the total time allowed to construct the diversion works equals or exceeds 24 months, an extension of time may be granted only if the applicant demonstrates to the chief engineer that circumstances beyond the control of the applicant necessitate the extension of time.

(e)(1) The applicant shall file a notice of completion of diversion works and the statutorily required field inspection fee with the chief engineer no later than March 1 following the deadline to construct the diversion works. The notice of completion of diversion works shall be filed on a form prescribed by the chief engineer.

(2) If a water flowmeter has been required by the chief engineer as a condition of the permit, the applicant shall also file a notice of completion of installation of a water flowmeter on a form prescribed by the chief engineer. This form shall be due at the same time that the notice of completion of diversion works form is due.

(f)(1) The applicant shall be sent a notice by the chief engineer giving the applicant 30 days to show that the diversion works were completed within the time allowed in accordance with the terms, conditions, and limitations of the approval of application and to pay the field inspection fee, if it has not already been paid, under either of the following conditions:

(A) A notice of completion of diversion works has not been completely and timely filed with the chief engineer.

(B) Information on file in the office of the chief engineer indicates that the diversion works were not properly constructed within the time allowed to construct the diversion works, including any authorized extensions of time.

(2) The permit shall be dismissed and its priority forfeited if the applicant fails to perform the following:

(A) To demonstrate that the diversion works were completed within the time allowed by the approval of application; and

(B) to pay the statutorily required field inspection fee, if it has not already been paid. (Authorized by K.S.A. 82a-706a; implementing K.S.A.82a-712, K.S.A. 82a-713, and K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-8-6. Perfection of a water right. (a) Except for municipal use, a reasonable period of time to perfect a water right shall be no fewer than four full calendar years following the deadline for construction of the diversion works. If the time to construct the diversion works is extended, the perfection period shall be extended to no fewer than four full calendar years beyond the final

deadline to construct the diversion works, unless the owner of the approval of application objects.

(b) A reasonable time to perfect a water right for municipal use shall be no fewer than 20 full calendar years plus the remainder of the calendar year in which the application was approved. Each holder of a permit for municipal use of water shall submit a progress report to the chief engineer 10 full calendar years after the permit was issued. The report shall be submitted on a form prescribed by the chief engineer. The report shall meet the following conditions:

(1) Compare the annual water use projected in the original application with the actual annual water use for the prior 10 years; and

(2) document compliance with an approved conservation plan, if one had been required. If the 10-year review by the chief engineer shows that actual annual water use is significantly less than originally projected, the holder shall revise the estimated annual water use for the next 10 years. If it is in the public interest, the total authorized annual quantity of water for the next 10 years shall be reduced by the chief engineer to a reasonable annual quantity based on the municipal user's revised estimates of annual water use for the next 10 years. If the 10-year review indicates that a required conservation plan was not being complied with or that the conservation plan does not meet the Kansas water office's conservation guidelines for municipal users, as in effect at the time of the review, an order requiring any of the following shall be issued by the chief engineer:

(A) That the conservation plan be amended to comply with current guidelines;

(B) that the user comply with the provisions of the approved conservation plan; or

(C) both of the requirements in paragraphs (b) (2) (A) and (B).

(c) If the applicant demonstrates to the chief engineer that a longer perfection period is necessary to justify purchase or construction of infrastructure related to the diversion, treatment, or distribution of water that actually is being built, the original time to perfect a water right for municipal use or other public entity, including a utility, may be extended for a period not to exceed a total time to perfect of 40 years.

(d) For good cause shown by the applicant, a reasonable extension of time to perfect a water right shall be allowed by the chief engineer if the request for extension is filed pursuant to the terms of K.A.R. 5-3-7 and is accompanied by the statutorily required filing fee.

(e) If water use reports and other information on file in the office of the chief engineer indicate that no water was applied to the authorized beneficial use during the time allowed to perfect the water right, including any authorized extensions of time, the owner of the approval of application as shown in the records of the chief engineer shall be sent a notice by the chief engineer, giving the owner 30 days to show that water was put to beneficial use within the terms, conditions, and limitations of the permit during the perfection period. If the owner fails to demonstrate that water was so used, the permit shall be dismissed and its priority forfeited. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-707(e), K.S.A. 82a-712, K.S.A. 82a-713, and K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-8-7. Extensions of time to perfect a water right. (a) For all beneficial uses of water, except municipal use, the total time to perfect the water right, including extensions of time, shall not exceed 10 years after the calendar year in which the diversion works were required to be completed unless one or more of the following "extenuating circumstances" exist.

(b) "Extenuating circumstances" shall include the following:

(1) Circumstances beyond the control of the owner of the approval of application that have unduly restricted the owner's ability to perfect the water right;

(2) actions or omissions by the chief engineer that make it necessary to extend the time to perfect; and

(3) for applications with a priority before May 1, 1978, the unavailability or lack of credibility of records of water use, crops grown, and the number and location of acres actually irrigated, and other relevant information during the perfection period, but other records or information is available for a period after the perfection period and would reasonably represent the application of water to beneficial use in accordance with the terms, conditions, and limitations of the permit.

(c) The burden shall be on the owner of the approval of application to document the extenuating circumstances described in subsection (b) and justify to the chief engineer the need for the extension of time to perfect the water right.

(d)(1) Extensions of time to perfect for applications with a priority before May 1, 1978, may be granted in any

reasonable increment of years. The total amount of time allowed to perfect the water right shall be reasonable.

(2) Extensions of time to perfect a water right for nonmunicipal use, with a priority on or after May 1, 1978, may be granted in any increment of time until the total time to perfect equals 10 years. After the total time allowed to perfect the water right equals 10 years, extensions of time shall be granted in one-year increments only.

(e) Extensions of the time to perfect a water right for municipal use of water that can be justified shall be extended in five-year increments or less after the original 20-year time period to perfect the water right has elapsed. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-712 and 82a-713; effective Sept. 22, 2000.)

K.A.R. 5-8-8. Owner required to allow chief engineer to conduct timely field inspection for certification. (a) In order to allow the chief engineer to conduct a timely field inspection to certify a water right, the owner of an approval of application shall perform the following:

(1) Operate the diversion works in the same manner that they were operated when water was applied to beneficial use during the perfection period, so that an accurate rate-of-diversion test can be conducted by the chief engineer;

(2) allow the chief engineer access to the diversion works and the authorized place of use for the purpose of making the field inspection; and

(3) allow, cooperate with, and assist the chief engineer in any other ways necessary for the chief engineer to conduct the field inspection.

(b) The owner of the approval of application shall allow the field inspection to be conducted within 365 days after the chief engineer has sent the owner of the approval of application a restricted letter requesting that the chief engineer be allowed to conduct a field inspection. If the owner does not cooperate with, assist, and allow the chief engineer to conduct a field inspection, without good cause, within one year after the restricted letter is sent by the chief engineer, an order shall be issued by the chief engineer requiring the owner of the approval of application to comply with the terms of the restricted letter. The order shall also be sent by restricted mail. If the owner fails to comply with the order of the chief engineer, an action shall be brought by the chief engineer to enforce the order of the chief engineer pursuant to the act for judicial review, and civil enforcement of agency actions, K.S.A. 77-624 et seq. and amendments thereto. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-714; effective Sept. 22, 2000.)

K.A.R. 5-9-1. Application for temporary permit acceptable for filing. To be acceptable for filing, an application for temporary permit to appropriate water for beneficial use shall be made on the prescribed form furnished by the division of water resources, Kansas state board of agriculture, shall be signed by the applicant or an authorized representative of the applicant, shall be accompanied by the statutory application fee, shall contain all the information requested for the proposed use as set forth in the prescribed application form and such other information as may be required for a proper understanding of the proposed appropriation. (Authorized by K.S.A. 82a-727; effective May 1, 1979.)

K.A.R. 5-9-2. Priority. Upon receipt in the office of the chief engineer of an acceptable application for temporary permit to appropriate water, accompanied by the statutory application fee, a stamp showing the date and time of receipt of the application shall establish the priority to the use of the water. The priority shall terminate on the date when use of water will be discontinued as set forth in the application or any authorized extension of time thereof. (Authorized by K.S.A. 82a-727; effective May 1, 1979.)

K.A.R. 5-9-3. Quantity. A temporary permit shall not be granted for a quantity in excess of 1,000,000 gallons except for dewatering purposes or when water is to be diverted from a source located on a construction site and used on the construction site in connection with a project that the chief engineer has approved under the authority of K.S.A. 82a-301 through 305a or K.S.A. 24-126. (Authorized by K.S.A. 82a-727(b); implementing K.S.A. 82a-727; effective May 1, 1979; amended December 3, 1990.)

K.A.R. 5-9-4. Place of use limitation. A temporary permit shall not be granted for more than one place of use. (Authorized by K.S.A. 82a-727; effective May 1, 1979.)

K.A.R. 5-9-5. Point of diversion limitation. A temporary permit shall not be granted authorizing more than one point of diversion from any source of supply. (Authorized by K.S.A. 82a-727; effective May 1, 1979.)

K.A.R. 5-9-6. Approval of application. The approval of an application for temporary permit shall be by endorsement on the application by the chief engineer of the division of water resources, Kansas state board of agriculture. The endorsement shall set forth such terms, limitations and conditions as deemed necessary by the

chief engineer. (Authorized by K.S.A. 82a-727; effective May 1, 1979.)

K.A.R. 5-9-7. Extension of time. For good cause shown by the applicant the chief engineer may grant an extension of time to continue the use of water under a temporary permit beyond the date authorized as shown in the approval of the application. The term of a temporary permit shall not exceed six (6) months including any authorized extension of time thereof. (Authorized by K.S.A. 82a- 727; effective May 1, 1979.)

K.A.R. 5-9-8. Ownership. A temporary permit for the appropriation of water shall not be transferable. (Authorized by K.S.A. 82a-727; effective May 1, 1979.)

K.A.R. 5-9-10. Revoked.

K.A.R. 5-9-11. Documentation of access to source of water supply for temporary permit. Before approval of a temporary permit, the applicant shall show that permission for access to the source of water supply has been obtained from the landowner or landowners of the property where the proposed point of diversion will be located. If permission is granted in an oil and gas lease, it shall be sufficient for the applicant to indicate this on the application for a temporary permit to appropriate water. If the water is to be obtained from land not covered by the oil and gas lease, then the permission of the landowner or landowners shall be adequately documented. (Authorized by and implementing K.S.A. 82a-727; effective Sept. 22, 2000.)

K.A.R. 5-10-1. Revoked.

K.A.R. 5-10-2. Revoked.

K.A.R. 5-10-3. Revoked.

K.A.R. 5-10-4. Waiver or exemptions. The chief engineer may grant an exemption or waiver from any regulation adopted by the chief engineer if it is shown that the granting of such exemption or waiver will not prejudicially nor unreasonably affect the public interest and that it will not impair an existing water right. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-711, 82a-712; effective May 1, 1983.)

K.A.R. 5-10-5. Administration of water use among vested right holders. If, during the administration of water rights, each appropriation right and approved permit to appropriate water for beneficial use has been regulated in accordance with the provisions of K.S.A. 82a-706b, the division of water resources shall administer the water available from that source of supply among the holders who have active vested rights, including vested rights for domestic purposes, on a proportional basis and in a manner which will provide, if possible, sufficient flow in the stream for vested rights for domestic purposes. The proportionment may be accomplished by a pro rata reduction in the rate or quantity that each vested right shall be allowed to divert, by setting up a rotation system or by any other equitable method. Vested rights shall be administered in this manner unless they have been adjudicated by a court of competent jurisdiction as to priority or rotation and then the chief engineer shall administer them in accordance with the order of the court. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-704a and K.S.A. 82a-706; effective May 1, 1986.)

K.A.R. 5-10-6. Procedure for determination of an active vested domestic water right. The existence of

an active domestic vested water right shall be determined by the chief engineer as follows:

(a) Information shall be filed with the chief engineer on a form prescribed by the chief engineer concerning the dates beneficial use of water was made, and the nature and extent of the active domestic vested right.

(b) Affidavits from at least three competent disinterested persons shall be filed by the claimant on a form prescribed by the chief engineer or other reliable substantiating evidence shall be submitted to the chief engineer by the claimant documenting the dates beneficial use of water was made, and the nature and extent of the active domestic vested right.

(c) Within a reasonable time, the staff of the division of water resources shall investigate the information submitted.

(d) Notice.

(1) Written notice of the claim shall be sent by the chief engineer to all water right owners of record in the office of the chief engineer with an authorized point of diversion within one-half mile of the claimed point of diversion.

(2) In addition, one notice in a newspaper with general circulation in the county in which the point of diversion is located shall be published by the chief engineer. Such published notice shall contain:

(A) the name of the claimant;

(B) the location of the claimed point of diversion; and

(C) a declaration that it is a claim for a domestic vested right.

(3) All notices shall be given at least 14 days prior to the close of the record.

(e) A copy of the chief engineer's draft order determining the active domestic vested water right and any comments received in response to the notices shall be furnished to the claimant by the chief engineer or the chief engineer's authorized representative.

(f) The claimant shall be given thirty days from the date the chief engineer mails the draft to the claimant in which to submit additional information, request a hearing concerning the determination, or both.

(g) If a hearing is requested by the claimant in a timely manner, or the chief engineer deems it to be in the public interest to do so, a hearing shall be held by the chief engineer, or the chief engineer's authorized representative, within a reasonable time.

(h) The chief engineer shall issue the order determining whether the claimed active vested domestic right exists and, if so, determining the nature and extent of that right.

(i) The order determining the active vested domestic right shall be made a matter of record in the office of the chief engineer. In addition, a copy of the order shall be furnished to the claimant by the chief engineer, with instructions that it shall be filed with the register of deeds in the county in which the point of diversion is located.

(j) All vested domestic water rights shall be assumed to have a priority of June 28, 1945 until they have been

adjudicated by a court of competent jurisdiction. Vested domestic rights shall be administered in accordance with K.A.R. 5-10-5. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-705a; effective November 28, 1994.)

K.A.R. 5-12-1. Aquifer storage and recovery permitting. (a) An operator may store water in an aquifer storage and recovery system under a permit to appropriate water for artificial recharge if the water appropriated is source water. The requirements of article 12 of the rules and regulations adopted by the Kansas department of agriculture, division of water resources are in addition to any requirements of the Kansas department of health and environment concerning underground injection wells, including article 46 of the rules and regulations adopted by the Kansas department of health and environment.

(b) Each application for a permit to appropriate water for artificial recharge shall describe the horizontal and vertical extent of the basin storage area in which the source water will be stored.

(1) The horizontal extent shall be determined by a closed boundary within which the recharge system used to store the water will be physically located. The recharge system may include recharge pits, recharge trenches, recharge wells, or other similar systems that cause source water to enter the storage volume of the basin storage area, either by gravity flow or by injection. The basin storage area may be subdivided into smaller areas representative of the areas that may be recharged by the individual recharge systems.

(2) The vertical extent shall be defined by a minimum and a maximum index water level for the basin recharge storage area, or for each subdivided area within

the basin storage area if the basin storage area is subdivided. The minimum index water level shall be the lowest water level within the basin storage area, or smaller subdivided area if the basin storage area is subdivided, that occurred within the 10 years before the filing of the application for a permit to appropriate water, or a period of time longer than 10 years demonstrated by the applicant to reflect the lowest water level. If the basin storage area is subdivided, measurements from the same year shall be used to determine the minimum index water level for each subdivision. The maximum index water level shall represent the maximum storage potential for the basin storage area.

(c) An application for a permit to appropriate water for artificial recharge shall set forth the maximum annual quantity and maximum rate of diversion of source water.

(d)(1) Each application for a permit to appropriate water for artificial recharge shall include a methodology for accounting for water stored in a basin storage area both on an annual basis and on a cumulative basis so that recharge credits can be calculated. If more than one application for a permit to appropriate water for artificial recharge relates to the same aquifer storage and recovery system, each application shall use the same methodology for accounting for water stored in the basin storage area. The accounting of the water balance of all water entering and leaving the basin storage area shall be determined by using sound engineering methods based on actual measurements, generally accepted engineering methodology, or a combination of both.

(2) Approval of any application for a permit to appropriate water for artificial recharge shall be contingent upon the chief engineer's approval of the method for accounting for the basin storage area.

(e) An applicant for recovery of water stored by the holder of a permit to appropriate water for artificial recharge to store water in a basin storage area shall obtain a permit separate from the aquifer storage permit to appropriate water for beneficial use for each well used to recover the water stored. The maximum annual quantity of water that may be appropriated for this purpose shall be no more than the maximum cumulative recharge credits available to the operator of the aquifer storage and recovery system. These credits shall be determined by the accounting methodology approved under a permit to appropriate water for artificial recharge pertaining to the aquifer storage and recovery system. In determining whether diversion of the annual quantity impairs other water rights, the following data may be considered by the chief engineer:

(1) The maximum storage volume available in the basin storage area;

(2) the spatial distribution of recharge and withdrawal systems;

(3) the maximum rate of diversion at which the water will be withdrawn; and

(4) any other relevant information.

Recharge credits may be accumulated over more than one year, and any amount of recharge credits available may be withdrawn in accordance with the permit if the withdrawal does not impair other water rights.

(f) The approval of application, if the water to be diverted is the water artificially recharged into the basin storage area, shall be conditioned upon the following:

(1) Generally accepted engineering methodology;

(2) a maximum annual quantity that does not exceed the recharge credits; and

(3) an annual reporting that complies with K.A.R. 5-12-2. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711 and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-12-2. Aquifer storage and recovery accounting. (a) In addition to annual water use reporting requirements pursuant to K.S.A. 82a-732, and amendments thereto, on June 1 of each year the permit holder of an aquifer storage or recovery system shall report an accounting of water in the basin storage area to the chief engineer and to any groundwater management district identified in subsection (c) of this regulation. The annual report for the preceding calendar year shall account for all water entering and leaving the basin storage area and shall specifically compute the amount of recharge credits held in the basin storage area.

(b) The report shall be in the form prescribed by the chief engineer and shall address the items in the water balance for the basin storage area, which may include the following amounts:

(1) Natural and artificial recharge;

(2) groundwater inflow and outflow;

(3) evaporation and transpiration;

(4) groundwater water diversions from all nondomestic wells;

(5) infiltration from streams;

(6) groundwater discharge to streams;

(7) the calculated recharge credits; and

(8) any other information that in the opinion of the chief engineer is pertinent to the basin storage and surrounding areas.

The annual accounting shall specifically take into account the amounts of natural recharge, artificial recharge, groundwater inflow, groundwater outflow, evapotranspiration, and groundwater pumpage. Groundwater pumpage shall include recharge credits withdrawn as well as pumpage from all nondomestic wells in the basin storage area. The annual accounting shall include any additional items within a basin storage area that would be necessary to determine the amount of recharge credit available for recovery.

(c) If any part of the basin storage area is within the boundaries of a groundwater management district, the permit holder of any aquifer storage or recovery system shall furnish a copy of the annual report to the district board for comments by June 1 of each year.

(d) If a groundwater management district receives an annual report, the district may provide comments to the chief engineer if the comments are submitted to the chief engineer within 30 days of the district's receipt of the report identified in subsection (c) of this regulation.

(e) The permit holder may be required by the chief engineer to submit additional information pertinent to the system. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711 and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-12-3. Hearings. (a) A hearing shall be held by the chief engineer in the general vicinity where an applicant proposes aquifer storage and recovery before approval of any such application for aquifer storage and recovery.

(b) If any part of a proposed basin storage area is within the boundaries of a groundwater management district, the hearing required by subsection (a) of this regulation shall be held within the groundwater management district. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711 and K.S.A. 82a-712; effective Sept. 22, 2000.)

K.A.R. 5-12-4. Aquifer storage and recovery systems in a groundwater management district. A groundwater management district may recommend rules and regulations pertaining to monitoring and accounting requirements for that portion of the basin storage area that falls within the district's boundaries. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711, K.S.A. 82a-712, and K.S.A. 82a-1028(o); effective Sept. 22, 2000.)

K.A.R. 5-13-1. Notice of intent to open or expand a sand and gravel pit operation. Each operator desiring to open or expand a sand and gravel pit operation shall file a notice of intent to open or expand a sand and gravel pit operation on a form prescribed by the chief engineer

before opening or expanding the sand and gravel pit operation.

The following information shall be included on the form:

(a) The legal description of the sand and gravel pit operation;

(b) the date the project began or will begin;

(c) the number of acres of the groundwater table that will be exposed by the project at the time active mining ceases;

(d) a legal description and a map showing the location of the groundwater that will be exposed at the time active mining ceases;

(e) the year the pit excavation is estimated to be completed;

(f) measures that will be used to protect the area groundwater supply from pollution; and

(g) any other pertinent information that may be required by the chief engineer to understand the nature of the proposed project and to ensure that the provisions of K.S.A. 82a-734, and amendments thereto, and any regulations promulgated thereunder, are being complied with. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-721 and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-2. Determination of "substantially adverse impact on the area groundwater supply." (a) A sand and gravel operation shall be deemed to cause a "substantially adverse impact on the area groundwater

supply," as provided in K.S.A. 82a-734 (b) and amendments thereto, if the sand and gravel pit operation is opened or expanded after the effective date of this regulation in any township that has an average annual potential net evaporation greater than 18 inches per year as determined from K.A.R. 5-6-3.

(b) In any township that has an average annual potential net evaporation of 18 or fewer inches per year, as determined from K.A.R. 5-6-3, the opening or expansion of a sand and gravel pit operation, shall be deemed to not cause a "substantially adverse impact on the area groundwater supply," as provided in K.S.A. 82a-734 and amendments thereto, unless the chief engineer can demonstrate that the project will cause one or more of the following:

(1) A direct impairment to a groundwater approval of application or water right;

(2) an unreasonable deterioration of the groundwater quality;

(3) an unreasonable raising or lowering of the static water level; or

(4) prevention of any waters of the state from moving to a person having a prior right to use these waters. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-721 and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-3. Determination of when groundwater evaporation is a beneficial use. On and after the effective date of this regulation, whenever the opening or expansion of a sand and gravel operation is considered to cause a substantially adverse impact on the area groundwater supply pursuant to K.A.R. 5-13-2, the evaporation caused shall be considered to be a beneficial use, and the

operator shall be required to receive an approval of application, or approval of an application for change, pursuant to K.S.A. 82a-701 et seq. and amendments thereto, before exposing the groundwater table to evaporation. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-711, K.S.A. 82a-721, and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-4. Exemption. (a) To the extent that groundwater evaporation causes a substantially adverse impact to the area groundwater supply pursuant to K.A.R. 5-13-2, a new application to appropriate the groundwater evaporation caused by the project shall be exempt from meeting the safe yield, allowable appropriation, or similar types of regulations adopted by the chief engineer. This exemption shall be granted if the operator meets all of the criteria in subsection (b) because exempting the quantity of water that has been, or will be, evaporated by exposing the groundwater table beneath the proven reserves will not prejudicially and unreasonably affect the public interest and will not impair any existing water right.

(b) Except as set forth in subsection (e), in order to qualify for this exemption, the operator shall show that on December 31, 1999, all of the following conditions were met:

(1) The operator had an active, existing sand and gravel mining operation.

(2) If required, the operator had a valid surface-mining license issued pursuant to the surface-mining land conservation and reclamation act, K.S.A. 49-601 et seq., and amendments thereto.

(3) If required, the operator had made a timely application for a hydraulic dredging permit or had received a hydraulic dredging permit issued pursuant to the Kansas water appropriation act.

(4) The operator had filed the water use reports required by, and paid any civil fines assessed by the chief engineer pursuant to K.S.A. 82a-732, and amendments thereto.

(5) The operator had paid the water protection fees required by K.S.A. 82a-954, and amendments thereto.

(6) To the extent necessary to physically operate, the operator had acquired all local permits and local zoning approvals.

(7) The operator had purchased, leased, or otherwise acquired legal control over proven sand and gravel reserves.

(8) The operator had filed an application to appropriate water or filed a notice of intent to open or expand a sand and gravel pit operation with the chief engineer when required by K.S.A. 82a-734(a), and amendments thereto.

(c) It shall be the burden of the operator to show that the operator meets the requirements of subsection (b) by filing the necessary information or documentation with the chief engineer on or before December 31, 2001. An extension of time may be granted by the chief engineer for good cause if the request for extension of time is filed by the operator with the chief engineer before December 31, 2001.

(d) To the extent that the operator meets the requirements of subsection (b) above, an application to appropriate water for evaporation of the groundwater caused by exposing the groundwater table shall be exempt from complying with safe yield, allowable appropriation, and similar types of regulations adopted by the chief engineer. This exemption shall apply to all the evaporation caused by exposing the groundwater table up to the areal extent of the proven reserves that existed on December 31, 1999.

(e) If, on the effective date of this regulation, an operator was in the process of establishing a replacement operation for an active, existing sand and gravel pit operation, an exemption shall be allowed by the chief engineer for the proposed replacement operation according to subsection (d) on terms, conditions and limitations that will neither cause impairment of existing water rights nor prejudicially and unreasonably affect the public interest if all of the following criteria are met:

(1) The proposed replacement sand and gravel operation is located outside the boundaries of all groundwater management districts and intensive groundwater use control areas.

(2) The geocenter of the proposed replacement operation is located within two miles of the geocenter of the existing, active operation.

(3) The proposed replacement operation met the provisions of paragraphs (b)(1) through (b)(6) of this regulation on December 31, 1999.

(4) The proposed replacement project meets the requirements of paragraphs (b) (7) and (8) on the effective

date of this regulation. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-721, K.S.A. 1999 Supp. 82a-1904, and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-5. Approval of pit operations that are opened or expanded after the effective date of this regulation. Except as set forth in K.A.R. 5-13-4, pit operations that are excavated or expanded after the effective date of this regulation and that have a substantial adverse impact on the area groundwater supply shall meet one of the following conditions:

(a) Receive prior approval of the chief engineer for a new permit to appropriate an annual quantity of water sufficient to offset the evaporation caused by exposing the groundwater table in a manner described in K.A.R. 5-13-7;

(b) acquire existing water rights and receive approval of the chief engineer to change the point of diversion, place of use, and the use made of water to authorize the water rights to be used for the project in a manner described in K.A.R. 5-13-7;

(c) acquire and take out of production sufficient water rights in the manner described in K.A.R. 5-13-7 to offset the net average annual evaporation caused by exposing the groundwater table; or

(d) any combination of the above. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-721 and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-6. Determination of the maximum rate of diversion and annual quantity of water. The annual quantity of water, in acre-feet, required to be appropriated for evaporation caused by exposing the area groundwater table shall be determined by multiplying the

exposed groundwater surface area of the project in acres by the potential net evaporation in inches, for Kansas, as found in K.A.R. 5-6-3, and dividing by 12. The rate of diversion shall be the natural rate of evaporation. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-721 and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-7. Offsets for evaporation of groundwater. The net average annual quantity of groundwater evaporation shall be authorized, accounted for, or offset in one or more of the following ways:

(a) An approval of application or water right currently authorizes the use of water at that pit location.

(b) A new approval of application authorizes the use of water at that pit location.

(c) Acceptable quality surface water that is legally and physically available for groundwater recharge is authorized to be diverted into the proposed project.

(d) Both of the following conditions are met:

(1) Water is made available by acquiring all, or a portion of, an existing water right to any of the following:

(A) Use surface water or groundwater, or both, that is hydraulically connected to a stream channel aquifer in which the project is located;

(B) use groundwater from an unconsolidated regional aquifer that is within a two-mile radius of the geocenter of the project that is the same unconsolidated regional aquifer in which the project is located, or a hydraulically connected aquifer; or

(C) use groundwater from an unconsolidated regional aquifer that is within a 3.5 mile radius of the geocenter of the project and is the same unconsolidated regional aquifer in which the project is located, or a hydraulically connected aquifer, if the operator can demonstrate to the chief engineer that sufficient water rights to offset the evaporation caused by the project cannot be acquired within a two-mile radius of the geocenter of the project after making reasonable and prudent efforts to find both proven reserves and water rights.

(2) The applicant demonstrates to the chief engineer that the acquired water right, or portion of it, will no longer be exercised by any of the following:

(A) Placing it in the custodial care of the state;

(B) placing it in a perpetual trust approved by the chief engineer; or

(C) restricting its future use in some other way that the chief engineer determines to be adequate to ensure that it will no longer be exercised.

(e) Diffused surface water is diverted into the project from inside a berm surrounding the project built to prevent unacceptable quality surface water from entering the groundwater table. The average annual amount of runoff shall be determined from a map titled "figure 12. – mean annual runoff in Kansas," dated June 1982, published by the Kansas water office and hereby adopted by reference, unless the applicant demonstrates to the chief engineer, or the chief engineer has, better, more site-specific data.

(f) Any other water credit or offset that the chief engineer determines will adequately offset the groundwater evaporation caused by the pit operation. (Authorized

by K.S.A. 82a-706a; implementing K.S.A. 82a-721 and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-8. Offset calculations. All of the following requirements shall apply with respect to an offset water right described in K.A.R. 5-13-7(d): (a) No physical diversion of the offset water right shall be required or allowed.

(b) The project shall receive credit for 100 percent of the net consumptive use of the water right used as an offset.

(c) Credit for acquisition of an existing surface water right shall be given for an equivalent quantity of water that is legally and physically available within the terms, conditions, and limitations of the surface water right at the location of the groundwater pit. The quantity of water available at the groundwater pit from the acquired surface water right shall be calculated by taking into account the following:

(1) Stream gains;

(2) stream losses;

(3) transit losses;

(4) water supplied from intervening tributaries; and

(5) water needed to satisfy senior surface water rights to the same source of supply.

(d) Credit for acquisition of a groundwater right with a point of diversion located in the same stream channel aquifer as the groundwater pit shall be given for either of the following:

(1) A groundwater right located within a two-mile radius of the groundwater pit; or

(2) a groundwater right in the same source of water supply with a point of diversion located more than two miles up gradient of the geocenter of the groundwater pit for the quantity of water legally and physically available under that groundwater right at its original point of diversion, minus the transit loss between the original groundwater point of diversion and the geocenter of the proposed pit. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-721 and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-9. Easements and covenants. The applicant shall provide any easements or covenants, attached to or running with the land, that are necessary to document that the offset water acquired pursuant to K.A.R. 5-13-7 will continue to be legally available to offset the evaporation of groundwater. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-721 and K.S.A. 82a-734; effective Sept. 22, 2000.)

K.A.R. 5-13-10. Time to construct the diversion works for a sand and gravel pit operation. (a) As used in this regulation, "completion of diversion works" means that both of the following have occurred:

(1) All equipment necessary to begin to operate a sand and gravel operation, including the hydraulic dredge, has been installed.

(2) Sufficient overburden has been excavated to begin to expose the groundwater to evaporation.

(b) A reasonable time to construct the diversion works for a sand and gravel pit operation shall be not less

than one full year following the approval of the application to appropriate water.

(c) For good cause shown by the applicant, a reasonable extension of time to construct the diversion works shall be allowed by the chief engineer if both of the following conditions are met:

(1) The request for extension is filed pursuant to the requirements of K.A.R. 5-3-7.

(2) The request for extension is accompanied by the statutorily required filing fee. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-712 and 82a-713; effective Sept. 22, 2000.)

K.A.R. 5-13-11. Time to perfect a water right for evaporation of groundwater. (a) A reasonable time to perfect a water right for evaporation of groundwater caused by a sand and gravel pit operation shall be neither less than five calendar years plus the remainder of the calendar year in which the application was approved, nor more than 20 years plus the remainder of the calendar year in which the application was approved.

(b)(1) For good cause shown by the applicant, a reasonable extension of the time to perfect the water right shall be allowed by the chief engineer if both of the following conditions are met:

(A) The request is timely filed pursuant to the terms of K.A.R. 5-3-7.

(B) The request is accompanied by the statutorily required filing fee.

(2) The total time to perfect a water right shall not exceed 40 years. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-713; effective Sept. 22, 2000.)

K.A.R. 5-14-1. Enforcement. (a) Except as set forth in subsection (i), the procedure set forth below shall be followed whenever enforcement action is taken by the chief engineer after becoming aware that a person may be performing any of the following:

(1) Violating any provision of K.S.A. 82a-701 et seq., and amendments thereto;

(2) violating any provision of a regulation adopted pursuant to that act; or

(3) violating a term, condition, or limitation of an approval of application or water right.

(b) The alleged violation shall be investigated by the chief engineer.

(c) A written report of the investigation shall be prepared by the chief engineer. This report shall include any documents regarding the matter that were relied upon or prepared by the chief engineer. This report shall be made a part of the official record of the chief engineer. If an approval of application or a water right is involved, the report shall be made an official part of that file.

(d)(1) If the investigation shows that no violation has occurred or that enforcement action is not warranted, no further enforcement action shall be taken at that time.

(2) If the investigation determines that a violation has occurred, an order shall be issued by the chief engineer. The owner or owners of the approval of application or

water right, as shown in the records of the chief engineer, shall be served by delivering a copy in person or sending a copy of the order by restricted mail. The order shall specify the following:

(A) What the violation is;

(B) what actions are necessary to correct the violation;

(C) what a reasonable time is in order to correct the violation. Extensions of time to correct a violation may be granted by the chief engineer if good cause is shown by the violator or owner;

(D) that the order will become effective immediately; and

(E) that a hearing may be requested within 15 days of the issuance of the order. The request for a hearing may include a request for a stay of the order. If the person shows good cause why a stay should be granted, a stay may be granted by the chief engineer.

(e) If the violation is corrected within the time specified by the chief engineer, the violator shall notify the chief engineer. An inspection shall be conducted by the chief engineer to determine if the violation has been corrected. If the violation has been corrected, the diversion of water may continue within the terms, conditions, and limitations of the approval of application or water right.

(f) If the violation is not corrected within the time specified by the chief engineer, an order requiring that unauthorized or illegal diversion of water cease until the violation is corrected shall be issued by the chief engineer.

(g) If the violator ceases diversion of water and then corrects the violation, the violator shall notify the chief engineer when the violation is corrected. The diversion works and the authorized place of use, as appropriate, shall be inspected by the chief engineer to determine if the violation has been corrected. If the chief engineer determines that the violation has been corrected, the order prohibiting diversion of water shall be rescinded by the chief engineer as soon as possible. When the owner or violator receives notice from the chief engineer that the order prohibiting the diversion of water has been rescinded, the diversion of water may recommence.

(h)(1) Any of the actions listed in paragraph (h) (2) may be taken by the chief engineer if the violator performs any of the following acts and fails to cease the diversion of water as ordered by the chief engineer:

(A) Violates any provision of K.S.A. 82a-701 et seq., and amendments thereto;

(B) violates any provision of a regulation adopted pursuant to that act; or

(C) violates a term, condition, or limitation of an approval of application or a water right.

(2) If the violator performs any act listed in paragraph (h)(1), any of the following actions may be taken by the chief engineer:

(A) Bring an action to enforce the orders of the chief engineer pursuant to the act for judicial review and civil enforcement of agency actions, K.S.A. 77-624 et seq., and amendments thereto;

(B) request the attorney general to bring an action in the name of the state of Kansas;

(C) request that criminal proceedings be brought pursuant to K.S.A. 82a-728, and amendments thereto;

(D) enter into a consent order with the violator specifying the remedial actions that shall be taken by the violator;

(E) take any other legally permissible enforcement action; or

(F) any combination of the above actions.

(i) The provisions of this regulation shall not apply to any actions taken by the chief engineer pursuant to K.S.A. 82a-706b, and amendments thereto, to enforce water right priorities and to prevent direct impairment by either of the following:

(1) Junior water rights; or

(2) illegal diversions of water.

(j) After the violator has been issued an order as specified in subsection (f), the violator may request an administrative hearing before the chief engineer in accordance with the provisions of K.A.R. 5-14-2. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706, 82a-706b, 82a-706d, and 82a-728; effective Sept. 22, 2000.)

K.A.R. 5-14-2. Request for conference hearing. (a) Each written request for a hearing of an order issued by the chief engineer according to K.A.R. 5-14-1 shall be served on the chief engineer within 15 days of the issuance of the order. The request for a hearing may include a

request for a stay of the order. If the requester demonstrates good cause for a stay to the chief engineer, a stay of the order may be granted by the chief engineer.

(b) If a request for a hearing is not served on the chief engineer within 15 days after the order is issued by the chief engineer, the order shall become a final agency action as defined by K.S.A. 77-607, and amendments thereto.

(c) If a request for a hearing is filed with the chief engineer within 15 days of the issuance of an order, a conference adjudicative hearing shall be held by the chief engineer.

(d) A conference hearing shall be an informal proceeding conducted according to the following criteria:

(1) The hearing officer shall regulate the course of a conference proceeding.

(2) Only parties may testify and present written exhibits.

(3) Only parties may offer comments on the issues.

(4) The hearing officer may conduct all or part of the hearing by telephone, or other electronic means, if each participant in the hearing has the opportunity to participate in the entire proceeding while it is taking place.

(5) The hearing shall be recorded at the agency's expense.

(6) Any party, at the party's expense and subject to any reasonable conditions that the chief engineer may establish, may cause a person other than the chief engineer to prepare a transcript from the chief engineer's

recording or cause additional recordings to be made during the hearing.

(e) After the conference adjudicative hearing, or completion of a full adjudicative hearing if the conference hearing was converted to a full hearing, a final agency action, as defined by K.S.A. 77-607, and amendments thereto, shall be issued by the chief engineer. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706 and K.S.A. 82a-706b; effective Sept. 22, 2000.)

K.A.R. 5-14-3. Administrative appeal to the secretary of agriculture. (a) Except as set forth in subsection (f), a summary order shall be issued by the chief engineer in accordance with the provisions of K.S.A. 77-537 through 77-542, and amendments thereto, for the following types of actions:

(1) Approval or rejection of an application to change the place of use, the point of diversion, the use made of water, or any combination, filed pursuant to K.S.A. 82a-708b, and amendments thereto;

(2) approval of an application as filed, approval of a smaller maximum annual quantity of water than requested, approval with conditions necessary to protect the public interest, or disapproval of an application to appropriate water for beneficial use filed pursuant to K.S.A. 82a-711, and amendments thereto; and

(3) abandonment and termination of a water right pursuant to K.S.A. 82a-718, and amendments thereto.

(b) If a request for a hearing is not filed with the chief engineer within 15 days after issuance of the summary order by the chief engineer, the order shall become final.

(c) If a request for a hearing is filed with the chief engineer within 15 days, a conference adjudicative hearing shall be held by the chief engineer in accordance with the provisions of K.S.A. 77-533 through K.S.A. 77-535, and amendments thereto.

(d) After the conference adjudicative hearing, an initial order shall be issued by the chief engineer in accordance with the provisions of K.S.A. 77-526, and amendments thereto.

(e) A petition for review of the initial order shall be filed with the secretary of agriculture in accordance with the provisions of K.S.A. 77-527, and amendments thereto, within 15 days of the issuance of the initial order by the chief engineer.

(f) A hearing may be held by the chief engineer in accordance with K.A.R. 5-3-4a before processing a new application to appropriate water if the chief engineer determines that one of the following conditions exists:

(1) It is in the public interest.

(2) A person demonstrates to the chief engineer that approval of the application may cause impairment of senior approvals of applications or water rights.

If the chief engineer holds a hearing before processing a new application to appropriate water, an initial order shall be issued by the chief engineer. A petition for review of the initial order shall be filed in accordance with the provisions of subsection (e) of this regulation. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-708b, K.S.A. 82a-709, K.S.A. 1999 Supp. 82a-711, K.S.A. 1999 Supp. 82a-718, K.S.A. 1999 Supp. 82a-1038, and K.S.A. 1999 Supp. 82a-1901; effective Sept. 22, 2000.)

K.A.R. 5-14-4. Appeal of the failure of the chief engineer to timely issue a certificate of appropriation. (a) The time period specified in K.S.A. 82a-714(c), and amendments thereto, shall begin when the time authorized to perfect the water right, including any authorized extensions of time, expires.

(b) If the chief engineer fails to issue a certificate of appropriation within the time limit specified by K.S.A. 82a-714(c) and amendments thereto, the water right owner may file a request for review with the secretary of agriculture pursuant to K.S.A. 82a-1901, and amendments thereto, within 15 days of the expiration of the time period specified in K.S.A. 82a-714(c) and amendments thereto. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-714 and K.S.A. 1999 Supp. 82a-1901; effective Sept. 22, 2000.)

K.A.R. 5-14-5. Conditions of a request for a conference hearing. (a) Any request for a conference hearing before the chief engineer shall meet the following conditions:

(1) Be in writing and be served on the chief engineer within 15 days of the issuance of the summary order;

(2) clearly admit, deny, or explain each of the findings of facts and conclusions of law in the summary order;

(3) identify any facts and conclusions of law that the person disputes and intends to place at issue; and

(4) state any other defenses and the bases for those defenses.

(b) If the person states that the person has no knowledge of a particular factual allegation, that allegation shall be deemed denied in the request. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706 and K.S.A. 82a-706b; effective Sept. 22, 2000.)

K.A.R. 5-14-6. Informal settlement. At any time during the proceedings conducted under K.A.R. 5-14-2, K.A.R. 5-14-3, or K.A.R. 5-14-4, the alleged violator may request a settlement conference. The request shall be in writing and shall be served on the chief engineer on behalf of the alleged violator. (Authorized by K.S.A. 82a-706a; implementing K.S.A. 1999 Supp. 82a-1901; effective Sept. 22, 2000.)

K.A.R. 5-14-7. Conversion of a conference hearing. (a) At any point during a conference hearing being conducted according to K.A.R. 5-14-2, the conference hearing may be converted by the chief engineer to a full adjudicative hearing to be heard by the chief engineer.

(b) The conversion of a conference hearing to a full adjudicative hearing may be effected only upon providing notice to all parties to the original proceedings.

(c) The record of the conference hearing may be used in the full adjudicative hearing.

(d) After a conference hearing is converted to a full adjudicative hearing, the hearing officer shall perform the following:

(1) Give any additional notice to parties or other persons necessary to satisfy the requirements of a full adjudicative hearing; and

(2) conduct any additional proceedings necessary to satisfy the requirements of a full adjudicative hearing.

(e) If the conference hearing is converted to a full adjudicative hearing, the full adjudicative hearing shall be conducted according to the following criteria:

(1) The hearing officer shall regulate the course of the proceedings.

(2) The parties may testify and present exhibits.

(3) The hearing officer may allow nonparties an opportunity to present oral or written statements and exhibits.

(4) All testimony shall be given under oath.

(5) To the extent necessary for full disclosure of all relevant facts and issues, the hearing officer shall afford to all parties the opportunity to respond, present evidence and arguments, conduct cross-examination, and submit rebuttal evidence.

(6) The hearing officer may conduct all or part of the hearing by telephone or other electronic means, if each party in the hearing has an opportunity to participate in the entire proceeding while it is taking place.

(7) The hearing shall be recorded at the agency's expense.

(8) Any party, at that party's expense and subject to any reasonable conditions that the state agency may establish, may cause a person other than the state agency to prepare a transcript from the state agency's recording or cause additional recordings to be made during the hearing.

(Authorized by K.S.A. 82a-706a; implementing K.S.A. 82a-706 and 82a-706b; effective Sept. 22, 2000.)

K.A.R. 5-30-1. Approval of or permits for dams. The chief engineer shall not approve or grant a permit for any dam subject to the jurisdiction of the chief engineer under the authority of K.S.A. 1979 Supp. 82a-301 through 305a, unless the applicant also receives prior approval of his or her application to appropriate water for beneficial use to be diverted by means of the dam for which the approval or permit is sought, unless the sole proposed use for the water is for domestic use. (Authorized by K.S.A. 82a-706a, 82a-709; effective May 1, 1980.)

Northwest Kansas Groundwater Management District No. 4

Rules and Regulations

April 3, 2002

5-24-1. Definitions. As used in these rules and regulations, the following words and phrases shall have the following meanings. (a) Board means the board of directors constituting the governing body of the northwest Kansas groundwater management district no. 4.

(b) District – The northwest Kansas groundwater management district no. 4.

(c) Series of wells means a group of not more than three wells that:

(1) are filed on separate applications;

(2) are in the same local source of supply;

(3) are within a 300 foot radius circle;

(4) supply water to a common distribution system; and

(5) do not exceed a maximum of 250 gallons per minute per well.

(d) Tailwater means that portion of the applied irrigation water which becomes run-off from the authorized place of use.

(e) Well means any excavation that is drilled, cored, bored, washed, driven, dug or otherwise constructed when the intended use of such excavation is for the acquisition, diversion, or artificial recharge of groundwater.

(f) Saturated thickness means the thickness of an aquifer which is saturated by groundwater. The measurement shall be the difference between the elevations of the recovered static water table and the top of the bedrock formation.

(g) Waste of water means:

(1) Groundwater which has been diverted or withdrawn from a source of supply and which is not used, managed or reapplied to a beneficial use on or in conjunction with land authorized as the place of use by a vested right, an appropriation right or an approved application for permit to appropriate water for beneficial use;

(2) any act or omission causing the unreasonable deterioration of the quality of water in any source of supply, thereby causing impairment of a person's right to the use of water;

(3) groundwater which an irrigator permits to escape and drain from the authorized place of use;

(4) groundwater applied to an authorized beneficial use in excess of the needs for such use;

(5) failure to recycle or reuse water on or in connection with the authorized place of use whenever reasonably possible for all the beneficial uses of water; and

(6) the application of water in a manner which is below efficiency standards currently considered technologically and economically feasible. (Authorized by K.S.A. 82a-1028(o); implementing K.S.A. 82a-1028(n); effective May 1, 1983; amended May 1, 1985.)

5-24-2. Allowable Withdrawals. (a) Except as set forth in subsection (b) below, all applications for a permit to appropriate water for beneficial use and all applications for a change in the point of diversion filed on permits with a priority date on or after February 16, 1990, shall be subject to the following criteria:

(1) The sum of the proposed appropriation, the vested rights, prior appropriation rights and earlier priority applications legally described within the area of consideration shall not exceed the calculated quantity of annual recharge received by the aquifer underlying the area of consideration. The quantity authorized on all prior permits, certificates, and vested rights and the quantity requested on prior applications shall be used to calculate the sum of prior appropriations.

(2) All limitation clauses listed on permits and certificates shall be considered to be in force.

(3) In the case of an application for change in the point of diversion, referred to above, all applications with a priority earlier than the priority established by the filing of the application for change shall be included in the analysis.

(4) The allowable annual appropriation shall be calculated using the formula Q = AR/12 where: (A) Q is the allowable annual appropriation in acre-feet per year.

(B) A is the area of consideration consisting of the area which includes each 10-acre tract located entirely within or intersected by a two-mile radius circle whose center is the center of the smallest discernable tract wherein the proposed well is to be located. The smallest discernable tract shall be the tract described in the application for permit to appropriate water and shall not be larger than a nominally described section of land nor smaller than a 10-acre tract of land.

(C) R is the average annual recharge in inches per year

(5) The value of .5 inch per year shall be used for the purpose of considering recharge, including natural recharge and return flow from irrigation, unless site-specific information is available.

(6) If a portion of the area of consideration is outside the district boundary, the district will request all available information on water rights from the division of water resources and the evaluation shall be conducted as though the entire area of consideration was within the district boundary. In the event a portion of the area of consideration is outside the state of Kansas, that portion of the area of consideration shall be excluded from the analysis.

(7) If the perimeter of the area under consideration intersects a group of wells authorized under prior applications, permits, certificates or vested rights, a reasonable quantity of water shall be assigned to each well based upon the best available information.

(b) The following applications are not subject to this allowable withdrawal regulation:

(1) Applications for a permit to appropriate water for domestic use;

(2) applications for a permit to appropriate water by means of covering wells withdrawing water from non-Ogallala aquifers;

(3) applications for temporary permits;

(4) applications for change in point of diversion if the well has been drilled, cased and test pumped, or if the diversion works have been completed and a notice of proof was timely filed with the chief engineer under the original approval of application and permit to proceed; and

(5) Applications for a permit to appropriate water requesting a quantity of water equal to or less than that quantity of water which will be conjunctively reduced from the currently available quantity under an existing water right or water rights within one-half mile of the proposed point of diversion. Prior to the reduction, the existing water right or water rights shall be reviewed and adjusted to reflect recent historical beneficial use. Factors used to determine recent historical beneficial use shall include, but not be limited to:

(A) reported water usage;

(B) cropping patterns, system type, and consumptive use requirements for irrigation, if applicable;

(C) reasonable use;

(D) waste of water violations; and

(E) non-pumpage or reduced pumpage without due and sufficient cause.

(c) Applications for a permit to appropriate water by means of well(s) requesting 25 acre-feet or less for reasonable small water use needs shall be approved on a case-by-case basis as determined by the board with the approval of the chief engineer.

(d) Exceptions to this regulation may be granted on an individual basis by recommendation of the board and with the approval of the chief engineer. The board may require the applicant to submit additional information as it deems necessary in order to make a determination that the exception will not impair existing rights nor prejudiciously [sic] and unreasonably affect the public interest. (Authorized by K.S.A. 82a-1028(o); implementing K.S.A. 82a-1028(n); effective May 1, 1983; amended May 1, 1985; amended May 1, 1987; amended August 19, 1991.)

5-24-3. Well spacing. (a) For wells proposed in the Ogallala aquifer which have satisfied the criteria of regulation 5-24-2, and for wells proposed in alluvial aquifers isolated from the Ogallala aquifer, the required spacing from all nondomestic existing or proposed wells authorized by an approval of application and permit to proceed, certificate of appropriation for beneficial use of water, or vested right shall be:

(1) 0 to 175 acre-feet requested – minimum spacing 1,400 feet; (2) 176 to 350 acre-feet requested – minimum spacing 2,000 feet; (3) 351 to 575 acre-feet requested – minimum spacing 2,400 feet; and (4) more than 575 acre-feet requested – minimum spacing 2,800 feet.

(b) All applications for nondomestic wells shall also be spaced a minimum of 800 feet from domestic wells constructed in the same aquifer unless the domestic wells are owned by the applicant, or the domestic well owner has granted written permission to reduce the spacing.

(c) Any nondomestic application for additional water from an existing well already covered by water rights shall meet the minimum spacing requirements above for the cumulative total of all existing water rights, earlier appropriations and the proposed appropriation for that well.

(d) For a battery of wells or for a series of wells, the well spacing shall meet the minimum spacing above based on the total amount of water applied for by the battery or series. The minimum spacing distance shall be measured from the outside of the 300 foot radial circle which is centered on the point which is equidistant from the wells within.

(e) Nondomestic wells withdrawing water from a cretaceous aquifer shall be spaced a minimum of 5,000 feet from all existing wells withdrawing water from the same aquifer.

(f) Exceptions to this regulation may be granted on an individual basis by recommendation of the board and in conjunction with the chief engineer. The board may require the applicant to submit additional information as it deems necessary in order to make a determination that the exception will not impair existing rights and will not prejudicially and unreasonable affect the public interest. (Authorized by K.S.A. 82a-1028(o); implementing K.S.A. 82a-1028(n); effective May 1, 1983.)

5-24-4. Tailwater control and waste. No water user shall allow any water which is being, or has been, diverted under any approval of application and permit to proceed, certificate of appropriation for beneficial use of water, or vested right for irrigation use to leave the land on which it is being, or has been, beneficially applied pursuant to the terms and conditions of that approval of application and permit to proceed, certificate of appropriation or vested right.

All water users shall construct, operate and maintain their water distribution systems in a manner as to prevent waste of water. (Authorized by K.S.A. 82a-1028(o); implementing K.S.A. 82a-1028(n); effective May 1, 1983.)

5-24-5. Allowable appropriation – reasonable use. The following guidelines shall be used to determine if a proposed appropriation of groundwater is reasonable for the intended use. (a) Irrigation use. No application for irrigation use shall be allowed more than the amount of water in acre-feet which exceeds: (1) An average of two acre-feet per acre on the land proposed to be irrigated; or

(2) The reasonable needs of the applicant. In determining the amount of water deemed reasonable on an application for irrigation use, consideration shall be given to

(A) Irrigation system design;

(B) Tailwater control methods;

(C) Well yield(s);

(D) Cropping patterns;

(E) Soil type; and

(F) Any other information necessary to evaluate the proposed use of water.

(b) Municipal use. In determining the amount of water deemed reasonable on an application for municipal use, the following criteria shall be used:

(1) The amount for population shall be based on a population projection for the ensuing 20 years. If population projection data is not available, the 20-year projected population shall be determined by extending present population for 20 years at one and one-half percent per year increase. The total amount reasonable for population shall then be determined by increasing present per capita use by 10% and multiplying that figure by the projected population.

(2) The present and projected industrial use for a 20-year-period shall also be considered.

(c) Stockwater use. For cattle, the amount of water totaling 15 gallons per head per day for the projected five-year maximum stock population shall be considered reasonable. Additional quantities for other than stock drinking purposes may be considered on a case-by-case basis.

(d) Other uses. All applications for any other use shall be reviewed to determine if the amount and rate of diversion requested are reasonable for the intended use.

(e) Exceptions to this regulation may be granted on an individual basis by recommendation of the board in conjunction with the chief engineer. The board may require the applicant to submit additional information as it deems necessary in order to make a determination that the exception will not prejudicially and unreasonably

affect the public interest. (Authorized by K.S.A. 82a-1028(o); implementing K.S.A. 82a-1028(n); effective May 1, 1983; amended August 19, 1991.)

5-24-6. Changes in points of diversion. (a) Replacement wells. A replacement well shall be relocated within 2,640 feet of the originally approved location provided the new location satisfies the well spacing criteria herein, and if the replacement well will be withdrawing water from the same local source of supply. If a new location cannot be found that will satisfy the well spacing criteria, the replacement well shall be located within 300 feet of the original well that is being replaced.

(b) Additional wells. If it becomes necessary to construct an additional well for the purpose of diverting the authorized amount of water under a certificate of appropriation for beneficial use of water or vested right, the additional well or wells shall satisfy K.A.R. 5-24-3. An additional well or wells shall not be considered for an appropriation unless the water right in question has had a certificate of appropriation issued. At no time shall the total quantity of water diverted or the maximum diversion rate from the existing well or wells plus the additional well or wells exceed the amount and rate authorized under the certificate of appropriation for beneficial use of water or vested right. Moreover, the additional well or wells plus the original well or wells involved in the certificate of appropriation for beneficial use or vested right shall be properly and adequately metered.

(c) Exceptions to this regulation may be granted on an individual basis by recommendation of the board in conjunction with the chief engineer. The board may require the applicant to submit additional information as it

deems necessary in order to make a determination that the exception will not prejudicially and unreasonably affect the public interest. (Authorized by K.S.A. 82a-1028(o); implementing K.S.A. 82a-1028(n); effective May 1, 1983; amended May 1, 1987.)

5-24-7. Well construction criteria. (a) All nondomestic wells completed after the effective date of this regulation shall include the installation of a check valve that meets or exceeds specifications set by the chief engineer, division of water resources.

(b) All wells, including domestic, to be completed in a cretaceous aquifer shall be constructed in such a way that the cretaceous aquifer is prevented from mixing with all quaternary, tertiary and any other cretaceous water bearing strata.

(c) Exceptions to this regulation may be granted on an individual basis by recommendation of the board and in conjunction with the chief engineer. The Board may require the applicant to submit additional information as it deems necessary in order to make a determination that the exception will not prejudicially or unreasonably affect the public interest. (Authorized by K.S.A. 82a-1028(o); implementing K.S.A. 82a-1028(n); effective May 1, 1983.)

No. 126, Original

In The

Supreme Court of the United States

STATE OF KANSAS,

Plaintiff,

v.

STATE OF NEBRASKA

and

STATE OF COLORADO,

Defendants.

BEFORE THE HONORABLE VINCENT L. MCKUSICK
SPECIAL MASTER

FINAL SETTLEMENT STIPULATION
VOLUME 5 OF 5

December 15, 2002

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Colorado Laws, Rules and Regulations re: Prohibition on Well Construction

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

RULES OF PROCEDURE FOR ALL ADJUDICATORY HEARINGS

2 CCR 402-3

EDITORS NOTES*

Rulemaking Authority for this Rule is cited in the Attorney General Opinions listed below. Those opinions may be found in the Code of Colorado Regulations, Attorney General Opinions Volume.

History and Amendments:
pp. 1-5 adopted 4/1/81, effective 6/1/81, 4 CR 5, pg. 5 adopted 8/7/81, effective 10/1/81, 4 CR 9.

A. G. Opinions:
4 AG 92; 4 AG 204

Annotations:

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RULES OF PROCEDURE FOR ALL ADJUDICATORY HEARINGS BEFORE THE GROUND WATER COMMISSION

I. BASIS AND PURPOSE

1. These rules of procedure implement the Colorado Ground Water Management Act, C.R.S. 1973, 37-90-101 *et seq.*, as amended, hereinafter referred to as the "Act." They shall govern the procedure to be followed by parties in adjudicatory hearings held by the Colorado Ground Water Commission, hereinafter referred to as the "commission."

2. These rules of procedure are intended to establish procedures to assure that all adjudicatory hearings held by the commission are conducted in a fair and impartial manner, to assure that all parties to proceedings under the Colorado Ground Water Management Act are accorded due process of law, and to provide the commission with all relevant facts and information pertinent to decision making. These rules shall be construed to carry out these purposes.

3. These rules of procedure are promulgated pursuant to C.R.S. 1973, 37-90-113, as amended, and 24-4-103, as amended.

II. APPLICABILITY OF STATE ADMINISTRATIVE PROCEDURE ACT

The procedures described in the State Administrative Procedure Act, C.R.S. 1973, 24-4-101, *et seq*, as amended, shall apply to all adjudicatory hearings held by the commission. Specifically, the provisions of C.R.S. 1973, 24-4-105, as amended, shall apply to all hearings unless such provisions are inconsistent with specific provisions of the Ground Water Management Act, in which case the Ground Water Management Act shall control.

III. PREHEARING CONFERENCES

A prehearing conference may be held if deemed advisable by the commission or the hearing officer assigned to the case. A request for a prehearing conference may be made in writing to the commission or the hearing officer at least 30 days before the scheduled hearing. The rehearing conference shall be for the purpose of facilitating the adjudication of issues to be determined at the hearing. The scope of issues to be raised at the prehearing conference shall be determined by the chairman of the commission or the hearing officer. Prehearing conferences shall be held in the commission offices in Denver unless it is determined by the chairman of the commission or the hearing officer that the conference should be held at some other location. The commission or the hearing officer may hold prehearing conferences by telephone at their discretion for the convenience of the parties.

IV DISCOVERY

Any party seeking to use discovery pursuant to the Colorado Rules of Civil Procedure shall first attempt to

obtain the information or documents requested informally. All further discovery shall be conducted pursuant to the Colorado Rules of Civil Procedure.

Subpoenae shall be issued by the hearing officer or the commission in accordance with C.R.S. 1973, 24-4-105(5), as amended, on forms provided to the hearing officer or the commission by the party requesting the subpoena.

V. CONDUCT OF HEARINGS

1. The hearing officer shall determine the order in which the parties shall present their cases, except that unless good cause is shown, the applicant or petitioner or whichever party shall be determined to bear the burden of proof, shall proceed first.

2. With respect to the submission of evidence, the Colorado Rules of Evidence shall be adhered to to the extent deemed appropriate by the hearing officer, and in accordance with the provisions of C.R.S. 1973, 24-4-105(7), which provides as follows:

> (7) Except as otherwise provided by statute, the proponent of an order shall have the burden of proof, and every party to the proceeding shall have the right to present his case or defense by oral and documentary evidence, to submit rebuttal evidence, and to conduct such cross-examination as may be required for a full and true disclosure of the facts. Subject to these rights and requirements, where a hearing will be expedited and the interests of the parties will not be substantially prejudiced thereby, a person conducting a hearing may receive all or part of the evidence in written form. The rules of evidence and requirements of proof shall conform, to the extent practicable, with

those in civil nonjury cases in the district courts. However, when necessary to do so in order to ascertain facts affecting the substantial rights of the parties to the proceeding, the person so conducting the hearing may receive and consider evidence not admissible under such rules if such evidence possesses probative value commonly accepted by reasonable and prudent men in the conduct of their affairs. Objections to evidentiary offers may be made and shall be noted in the record. The person conducting a hearing shall give effect to the rules of privilege recognized by law. He may exclude incompetent and unduly repetitious evidence. Documentary evidence may be received in the form of a copy or excerpt if the original is not readily available; but, upon request, the party shall be given an opportunity to compare the copy with the original. An agency may utilize its experience, technical competence, and specialized knowledge in the evaluation of the evidence presented to it.

3. The hearing officer may examine any witness appearing before him.

VI. PARTICIPATION OF THE GROUND WATER COMMISSION STAFF

The staff of the Ground Water Commission may appear to present any testimony or evidence relevant to any matter being heard by the commission or its hearing officer. The staff shall be represented by the attorney general.

VII. TIME FOR FILING APPEALS OF ORDERS OF THE GROUND WATER COMMISSION OR THE STATE ENGINEER

A. The basis and purpose of this rule are the same as stated in Rule I of the Rules of Procedure for All Adjudicatory Hearings Before the Ground Water Commission (2 CCR 402-3). Rule I is incorporated herein by reference and is hereby re-affirmed.

B. Any person who wishes to request a hearing on or claim injury from an order of the Ground Water Commission or the State Engineer pursuant to C.R.S. 1973, 37-90-114, shall file a written statement with the commission setting forth the grounds for the request for hearing or claim of injury within 30 days of receipt of the order.

After receipt of such a request for hearing or claim of injury, the commission shall conduct a hearing thereon.

C. This rule shall be effective on October 1, 1981.

APPENDIX H2

DESIGNATED GROUND WATER COLORADO REVISED STATUTES

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COLORADO REVISED STATUTES GOVERNING DESIGNATED GROUND WATER

37-90-101 Short Title

This article shall be known and may be cited as the "Colorado Ground Water Management Act"

37-90-102 Legislative declaration – repeal.

1) It is declared that the traditional policy of the state of Colorado, requiring the water resources of this state to be devoted to beneficial use in reasonable amounts through appropriation, is affirmed with respect to the designated ground waters of this state, as said waters are defined in section 37-90-103(6). While the doctrine of prior appropriation is recognized, such doctrine should be modified to permit the full economic development of designated ground water resources. Prior appropriations of ground water should be protected and reasonable ground water pumping levels maintained, but not to include the maintenance of historical water levels. All designated ground waters in this state are therefore declared to be subject to appropriation in the manner defined in this article.

(2) The general assembly finds and declares that the allocation of nontributary ground water pursuant to statute is based upon the best available evidence at this time. The general assembly recognizes the unique, finite nature of nontributary ground water resources outside of designated ground water basins and declares that such nontributary ground water shall be devoted to beneficial use in amounts based upon conservation of the resource and protection of vested water rights. Economic development of this resource shall allow for the reduction of hydrostatic pressure levels and aquifer water levels consistent with the protection of appropriative rights in the natural stream system. The doctrine of prior appropriation shall not apply to nontributary ground water. To continue the development of nontributary ground water resources consonant with conservation shall be the policy of this state. Such water shall be allocated as provided in this article upon the basis of ownership of the overlying

land. This policy is a reasonable exercise of the general assembly's plenary power over this resource.

(3)(a) The general assembly finds and declares that in water division 3, established pursuant to section 37-92-201(1)(c), there exists a confined aquifer system underlying portions of the San Luis valley. The hydrologic system in water division 3 and, in particular, the hydrology and geology of the shallow aquifer and confined aquifer systems and their relationship to surface streams in water division 3 are unique and are among the most complex in the state. Unless properly augmented, new withdrawals of groundwater affecting the confined aquifer system can materially injure vested water rights and increase the burden of Colorado's scheduled deliveries under the Rio Grande compact. There is currently insufficient comprehensive data and knowledge of the relationship between the surface streams and the confined aquifer system to permit a full understanding of the effect of groundwater withdrawals, affecting the confined aquifer, upon the natural stream and aquifer systems in water division 3.

(b) This subsection (3) is repealed, effective July 1, 2003.

37-90-103 – Definitions – repeal.

As used in this article, unless the context otherwise requires:

(1) "Alternate point of diversion well" means any well drilled and used, in addition to an original well or other diversion, for the purpose of obtaining the present appropriation of that original well, from more than one point of diversion.

(2) "Aquifer" means a formation, group of formations, or part of a formation containing sufficient saturated permeable material that could yield a sufficient quantity of water that may be extracted and applied to a beneficial use.

(3) "Artesian well" means a well tapping an aquifer in which the static water level in the well rises above where it was first encountered in the aquifer, due to hydrostatic pressure.

(4) "Board" or "board of directors" means the board of directors of a ground water management district as organized under section 37-90-124.

(5) "Colorado water conservation board" refers to the board created in section 37-60-102.

(6)(a) "Designated ground water" means that ground water which in its natural course would not be available to and required for the fulfillment of decreed surface rights, or ground water in areas not adjacent to a continuously flowing natural stream wherein ground water withdrawals have constituted the principal water usage for at least fifteen years preceding the date of the first hearing on the proposed designation of the basin, and which in both cases is within the geographic boundaries of a designated ground water basin. "Designated ground water" shall not include any ground water within the Dawson-Arkose, Denver, Arapahoe, or Laramie-Fox Hills formation located outside the boundaries of any designated ground water basin that was in existence on January 1, 1983.

(b)(I) However, "designated ground water" may include any ground water in the Crow Creek drainage area in Weld county, upstream from the confluence of

Crow Creek and Little Crow Creek, within the Laramie-Fox Hills formation located outside such boundaries when the Laramie-Fox Hills formation is not overlaid by the Dawson-Arkose, Denver, or Arapahoe formations.

(II) If, upon receipt by the state engineer of the findings of the Laramie-Fox Hills study, as authorized by Senate Bill 250, 1985 legislative session, that the upper Crow Creek drainage area in Weld county, upstream from the confluence of Crow Creek and Little Crow Creek, within the Laramie-Fox Hills formation when the Laramie-Fox Hills formation is not overlaid by the Dawson-Arkose, Denver, or Arapahoe formations should not be a designated ground water basin, this paragraph (b) is repealed.

(7) "Designated ground water basin" means that area established by the ground water commission in accordance with section 37-90-106.

(8) "Ground water commission" or "commission" refers to the ground water commission created and provided for in section 37-90-104 to facilitate the functioning of this article.

(9) "Ground water management district" or "district" means any district organized under the provisions of this article.

(10) "Historical water level" means the average elevation of the ground water level in any area before being lowered by the activities of man, as nearly as can be determined from scientific investigation and available facts.

(10.5) "Nontributary ground water" means that ground water, located outside the boundaries of any

designated ground water basins in existence on January 1, 1985, the withdrawal of which will not, within one hundred years, deplete the flow of a natural stream, including a natural stream as defined in sections 37-82-101(2) and 37-92-102(1)(b), at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal. The determination of whether ground water is nontributary shall be based on aquifer conditions existing at the time of permit application; except that, in recognition of the de minimis amount of water discharging from the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers into surface streams due to artesian pressure, when compared with the great economic importance of the ground water in those aquifers, and the feasibility and requirement of full augmentation by wells located in the tributary portions of those aquifers, it is specifically found and declared that, in determining whether ground water of the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers is nontributary, it shall be assumed that the hydrostatic pressure level in each such aquifer has been lowered at least to the top of that aquifer throughout that aquifer; except that not nontributary ground water, as defined in subsection (10.7) of this section, in the Denver basin shall not become nontributary ground water as a result of the aquifer's hydrostatic pressure level dropping below the alluvium of an adjacent stream due to Denver basin well pumping activity. Nothing in this subsection (10.5) shall preclude the designation of any aquifer or basin, or any portion thereof, which is otherwise eligible for designation under the standard set forth in subsection (6) of this section relating to ground water in areas not adjacent to a continuously flowing natural stream wherein ground water withdrawals have constituted the principal water usage

for at least fifteen years preceding the date of the first hearing on the proposed designation of a basin.

(10.7) "Not nontributary ground water" means ground water located within those portions of the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers that are outside the boundaries of any designated ground water basin in existence on January 1, 1985, the withdrawal of which will, within one hundred years, deplete the flow of a natural stream, including a natural stream as defined in sections 37-82-101(2) and 37-92-102(1)(b), at an annual rate of greater than one-tenth of one percent of the annual rate of withdrawal.

(11) "Person" means any individual, partnership, association, or corporation authorized to do business in the state of Colorado, or any political subdivision or public agency thereof, or any agency of the United States, making a beneficial use, or taking steps, or doing work preliminary to making a beneficial use of designated underground waters of Colorado.

(12) "Private driller" means any individual, corporation, partnership, association, political subdivision, or public agency which operates as lessee or owner its own well drilling rig and equipment and which digs, drills, redrills, cases, recases, deepens, or excavates a well upon the property of such entity.

(12.5) "Quarter-quarter" means a fourth of a fourth of a section of land and is equal to approximately forty acres.

(12.7) "Replacement plan" means a detailed program to increase the supply of water available for beneficial use in a designated ground water basin or portion thereof for

the purpose of preventing material injury to other water rights by the development of new points of diversion, by pooling of water resources, by water exchange projects, by providing substitute supplies of water, by the development of new sources of water, or by any other appropriate means consistent with the rules adopted by the commission. "Replacement plan" does not include the salvage of designated ground water by the eradication of phreatophytes, nor does it include the use of precipitation water collected from land surfaces that have been made impermeable, thereby increasing the runoff, but not adding to the existing supply of water.

(13) "Replacement well" means a new well which replaces an existing well and which shall be limited to the yield of the original well and shall take the date of priority of the original well, which shall be abandoned upon completion of the new well.

(14) "Resident agriculturist" means a bona fide farmer or rancher residing in the designated ground water basin whose major source of income is derived from the production and sale of agricultural products.

(15) "State engineer" means the state engineer of Colorado or any person deputized by him in writing to perform a duty or exercise a right granted in this article.

(16) "Subdivision" means an area within a ground water basin.

(17) "Supplemental well" means any well drilled and used, in addition to an original well or other diversion, for the purpose of obtaining the quantity of the original appropriation of the original well, which quantity can no longer be obtained from the original well.

(18) "Taxpaying elector" means a person qualified to vote at general elections in Colorado, who owns real or personal property within the district and has paid ad valorem taxes thereon in the twenty months immediately preceding a designated time or event, which property is subject to taxation at the time of any election held under the provisions of this article or at any other time in reference to which the term "taxpaying elector" is used. A person who is obligated to pay taxes under a contract to purchase real property in the district shall be considered an owner. The ownership of any property subject to the payment of a specific ownership tax on a motor vehicle or trailer or of any other excise or property tax other than general ad valorem property taxes shall not constitute the ownership of property subject to taxation as provided in this article.

(19) "Underground water" and "ground water" are used interchangeably in this article and mean any water not visible on the surface of the ground under natural conditions.

(20) "Waste" means causing, suffering, or permitting any well to discharge water unnecessarily above or below the surface of the ground.

(21)(a) "Well" means any structure or device used for the purpose or with the effect of obtaining ground water for beneficial use from an aquifer.

(b) "Well" does not include a naturally flowing spring or springs where the natural spring discharge is captured or concentrated by installation of a near-surface structure or device less then ten feet in depth located at or within fifty feet of the spring or springs' natural discharge point and the water is conveyed directly by gravity flow or into a

separate sump or storage, if the owner obtains a water right for such structure or device as a spring pursuant to article 92 of this title.

(22) "Well driller" means any individual, corporation, partnership, association, political subdivision, or public agency which digs, drills, cases, recases, deepens, or excavates a well either by contract or for hire or for any consideration whatsoever.

37-90-104 – Commission – organization – expenses.

(1) There is created a ground water commission to consist of twelve members, nine of whom shall be appointed by the governor and confirmed by the senate.

(2) The appointed members of the commission holding office as of July 1, 1971, shall continue in office for the term of their appointment and until their successors are appointed.

(3)(a) All appointments to the commission shall be for four-year terms, except those made to fill vacancies, which shall be for the remainder of the term vacated.

(b) Appointments made after July 1, 1971, as terms expire or are vacated, shall be made so that the commission includes six members who are resident agriculturists of designated ground water basins, with no more than two resident agriculturists from the same ground water basin to be members of the commission at the same time; one member who shall be a resident agriculturist and who shall be appointed from water division 3; and two residents of the state who shall represent municipal or industrial water users of the state, one of whom shall be appointed from the area west of the continental divide.

(4) In addition to the appointed members, the executive director of the department of natural resources shall be a voting member, and the state engineer, and the director of the Colorado water conservation board shall be nonvoting members of the commission. Six voting members shall constitute a quorum at any regularly or specially called meeting of the commission, and a majority vote of those present shall rule. The commission shall establish and maintain a schedule of at least four general meetings each year. The chairman, at his discretion, or two members may call special meetings of the commission to dispose of accumulated business.

(5) Members of the commission shall be paid no compensation but shall be paid actual necessary expenses incurred by them in the performance of their duties as members thereof and a per diem of fifty dollars per day while performing official duties, not to exceed two thousand four hundred dollars in any year.

(6) The commission shall biennially select a chair and vice-chair from among the appointed members. The state engineer shall be ex officio the executive director of the commission and shall carry out and enforce the decisions, orders, and policies of the commission. The commission may delegate to the executive director the authority to perform any of the functions of the commission as set forth in this article except the determination of a designated ground water basin as set forth in section 37-90-106 and the creation of ground water management districts. If any person is dissatisfied with any action of the executive director under the exercise of the powers delegated by the commission, the person may appeal said action to the commission, which shall hear the person's appeals as specified in sections 37-90-113 and 37-90-114.

(7) The provisions of section 24-6-402(3)(a)(II), C.R.S., concerning imminent court action, as applied to the ground water commission and to any member, employee, contractor, agent, servant, attorney, or consultant thereof, shall not include any actions within the scope of sections 37-90-106 to 37-90-109 and section 37-90-111.

37-90-105 – Small capacity wells.

(1) The state engineer has the authority to approve permits for the following types of wells in designated ground water basins without regard to any other provisions of this article:

(a) Wells not exceeding fifty gallons per minute and used for no more than three single-family dwellings, including the normal operations associated with such dwellings but not including the irrigation of more than one acre of land;

(b) Wells not exceeding fifty gallons per minute and used for watering of livestock on range and pasture;

(c)(I) One well not exceeding fifty gallons per minute and used in one commercial business.

(II) To qualify as a "commercial business" under this paragraph (c), the business shall be:

(A) A business that will be operated by the well owner and that will have its own books, bank accounts, checking accounts, and separate tax returns;

(B) A business that will use water solely on the land indicated in the permit for the well and for the purposes stated in such permit;

(C) A business that will maintain its individual assets and will own or lease the property on which the well is to be located or where the business is operated;

(D) A business that will have its own contractual agreements for operation of the business;

(E) A business that agrees not to transfer a permit issued under this paragraph (c) to another entity that also holds a small capacity commercial well permit under this paragraph (c); and

(F) A business that agrees to notify any potential buyer that such buyer shall notify the state engineer of any change in ownership of such business within sixty days after any such change in ownership.

(d) Wells to be used exclusively for monitoring and observation purposes if said wells are capped and locked and used only to monitor water levels or for water quality sampling; or

(e) Wells to be used exclusively for fire-fighting purposes if said wells are capped and locked and available for use only in fighting fires.

(2) The state engineer has the authority to adopt rules in accordance with section 24-4-103, C.R.S., to carry out the provisions of this section. Any party adversely affected or aggrieved by a rule adopted by the state engineer may seek judicial review of such action pursuant to section 24-4-106, C.R.S.

(3)(a)(I) Wells of the type described in this section may be constructed only upon the issuance of a permit in accordance with the provisions of this section. A fee of sixty dollars shall accompany any application for a new

well permit under this section. A fee of twenty dollars shall accompany any application for a replacement well of the type described in subsection (1) of this section.

(II) Notwithstanding the amount specified for any fee in subparagraph (I) of this paragraph (a), the commission by rule or as otherwise provided by law may reduce the amount of one or more of the fees if necessary pursuant to section 24-75-402(3), C.R.S., to reduce the uncommitted reserves of the fund to which all or any portion of one or more of the fees is credited. After the uncommitted reserves of the fund are sufficiently reduced, the commission by rule or as otherwise provided by law may increase the amount of one or more of the fees as provided in section 24-75-402(4), C.R.S.

(b) Beginning on August 5, 1998, the state engineer shall not approve a permit for a small capacity well with an annual volume of use in excess of five acre-feet, unless the well is located in a ground water management district that has adopted rules that allow an annual volume in excess of five acre-feet. This limitation shall not apply to a replacement permit for a well where the original permit allows an annual volume of use in excess of five acre-feet or to a permit for a well covered by the provisions of subsection (4) of this section where the actual annual volume of use was in excess of five acre-feet.

(c) If the application is made pursuant to this section for a well that will be located in a subdivision, as defined in section 30-28-101(10), C.R.S., and approved on or after June 1, 1972, pursuant to article 28 of title 30, C.R.S., for which the water supply plan has not been recommended for approval by the state engineer, the cumulative effect of all such wells in the subdivision shall be considered in

determining material injury, and the state engineer shall deny the application if it is determined that the proposed well will cause material injury to existing water rights.

(d)(I) If any person wishes to replace an existing well of the type described in subsection (1) of this section, such person shall file an application pursuant to this subsection (3) for the construction of a well and shall state in such application such person's intent to abandon the existing well that is to be replaced.

(II) If such a replacement well will not change the amount or type of use of water that can lawfully be made by means of the existing well, a permit to construct and use the replacement well shall be issued, and the existing well shall be abandoned within ninety days after the completion of the replacement well.

(e) Wells for which permits have been granted or may be granted shall be constructed within two years after the permit is issued, which time may be extended for successive years at the discretion of the state engineer for good cause shown.

(4)(a) Any wells of the type described by this section that were put to beneficial use prior to May 8, 1972, and any wells that were used exclusively for monitoring and observation purposes prior to August 1, 1988, not of record in the office of the state engineer, may be recorded in that office upon written application, payment of a processing fee of sixty dollars, and permit approval. The record shall include the date the water is claimed to have been first put to beneficial use.

(b) Any owner of an existing well that was constructed prior to May 8, 1972, or has a well permit issued

prior to January 1, 1996, under the provisions of this section, and that was put to beneficial use for watering livestock in a confined animal-feeding operation prior to January 1, 1996, and has been used for that purpose, may apply by December 31, 1999, to obtain a new permit for that well up to the extent of its beneficial use prior to January 1, 1996, for watering livestock in that commercial business pursuant to paragraph (c) of subsection (1) of this section. Such well shall be in addition to the one commercial business well allowed in paragraph (c) of subsection (1) of this section. Such an application shall include a sixty dollar filing fee and shall provide documentation of the annual volume of water put to beneficial use from the well. The state engineer shall have the authority to determine the adequacy of the submitted information for the purpose of approving completely, approving in part, or denying the application. Permits issued after January 1, 1996, up to August 5, 1998, shall remain valid thereafter according to the terms and conditions of those permits.

(5) The state engineer shall act upon an application filed under this section within forty-five days after such filing and shall support the ruling with a written statement of the basis therefor.

(6)(a) Any person aggrieved by a decision of the state engineer granting or denying an application under this section may request a hearing before the state engineer pursuant to section 24-4-104, C.R.S. The state engineer may, in the state engineer's discretion, have such hearings conducted before such agent as it may designate for a ruling in the matter. Any party who seeks to reverse or modify the ruling of the agent of the state engineer may file an appeal to the state engineer pursuant to section 24-4-105, C.R.S.

(b) Any party aggrieved by a final decision of the state engineer granting or denying an application filed under this section may within thirty days after such decision file a petition for review with the district court in the county in which the well is located. Upon receipt of such petition, the designated ground water judge for the basin in which the well is located shall conduct such hearings, pursuant to section 24-4-106, C.R.S., as necessary to determine whether or not the decision of the state engineer shall be upheld. In any case in which the state engineer's decision is reversed, the judge shall order the state engineer to grant or deny the application, as such reversal may require, and may specify such terms and conditions as are appropriate.

(7) The board of any ground water management district has the authority to adopt rules that further restrict the issuance of small capacity well permits. In addition, the board of any ground water management district has the authority to adopt rules that expand the acre-foot limitations for small capacity wells set forth in this section. However, in no event shall an annual volume of more than eighty acre-feet be allowed for any small capacity well. Rules adopted by the board may be instituted only after a public hearing. Notice of such hearing shall be published. Such notice shall state the time and place of the hearing and describe, in general terms, the rules proposed. Within sixty days after such hearing, the board shall announce the rules adopted and shall cause notice of such action to be published. In addition, the board shall mail, within five days after the adoption of the rules, a copy of the rules to the state engineer. Any party adversely affected or aggrieved by such a rule may, not later than thirty days after the last date of publication,

initiate judicial review in accordance with the provisions of section 24-4-106, C.R.S.; except that venue for such judicial review shall be in the district court for the county in which the office of the ground water management district is located.

37-90-106 – Determination of designated ground water basins – exception – repeal.

(1)(a) The commission shall, from time to time as adequate factual data becomes available, determine designated ground water basins and subdivisions thereof by geographic description and, as future conditions require and factual data justify, shall alter the boundaries or description thereof.

(b) In making such determinations the commission shall make the following findings:

(I) The name of the aquifer within the proposed designated basin;

(II) The boundaries of each aquifer being considered;

(III) The estimated quantity of water stored in each aquifer;

(IV) The estimated annual rate of recharge;

(V) The estimated use of the ground water in the area.

(2) If the source is an area of use exceeding fifteen years as defined in section 37-90-103(6), the commission shall list those users who have been withdrawing water during the fifteen-year period, the use made of the water,

the average annual quantity of water withdrawn, and the year in which the user began to withdraw water.

(3) Before determining or altering the boundaries of a designated ground water basin or subdivisions thereof, the state engineer shall prepare and file in his office a map clearly showing all lands included therein, together with a written description thereof sufficient to apprise interested parties of the boundaries of the proposed basin or subdivisions thereof. The commission shall publish the same and hold a hearing thereon. Following such hearing, the commission shall enter an order to either create the proposed designated ground water basin, to include modification of the proposed boundaries, if any, or dismiss the original proposal, according to the factual information presented or available.

(4)(a) The commission shall not, after May 23, 1983, determine as part of any designated ground water basin any ground water within the Dawson-Arkose, Denver, Arapahoe, or Laramie-Fox Hills formations which was located outside the boundaries of any designated ground water basin that was in existence on January 1, 1983.

(b)(I) However, the commission may determine as a part of any designated ground water basin any ground water in the Crow Creek drainage area in Weld county, upstream from the confluence of Crow Creek and Little Crow Creek, within the Laramie-Fox Hills formation when the Laramie-Fox Hills formation is not overlaid by the Dawson-Arkose, Denver, or Arapahoe formations.

(II) If, upon receipt by the state engineer of the findings of the Laramie-Fox Hills study, as authorized by Senate Bill 250, 1985 legislative session, that the upper Crow Creek drainage area in Weld county, upstream from

the confluence of Crow Creek and Little Crow Creek, within the Laramie-Fox Hills formation when the Laramie-Fox Hills formation is not overlaid by the Dawson-Arkose, Denver, or Arapahoe formations should not be a designated ground water basin, this paragraph (b) is repealed.

37-90-107 – Application for use of ground water – publication of notice – conditional permit – hearing on objections – well permits.

(1) Any person desiring to appropriate ground water for a beneficial use in a designated ground water basin shall make application to the commission in a form to be prescribed by the commission. The applicant shall specify the particular designated ground water basin or subdivision thereof from which water is proposed to be appropriated, the beneficial use to which it is proposed to apply such water, the location of the proposed well, the name of the owner of the land on which such well will be located, the estimated average annual amount of water applied for in acre-feet, the estimated maximum pumping rate in gallons per minute, and, if the proposed use is irrigation, the description of the land to be irrigated and the name of the owner thereof, together with such other reasonable information as the commission may designate on the form prescribed. The amount of water applied for shall only be utilized on the land designated on the application. The place of use shall not be changed without first obtaining authorization from the ground water commission.

(2) Upon the filing of such application, a preliminary evaluation shall be made to determine if the application may be granted. If the application can be given favorable consideration by the ground water commission under

existing policies, then, within thirty days, the application shall be published.

(3) After the expiration of the time for filing objections, if no such objections have been filed, the commission shall, if it finds that the proposed appropriation will not unreasonably impair existing water rights from the same source and will not create unreasonable waste, grant the said application, and the state engineer shall issue a conditional permit to the applicant within forty-five days after the expiration of the time for filing objections or within forty-five days after the hearing provided for in subsection (4) of this section to appropriate all or a part of the waters applied for, subject to such reasonable conditions and limitations as the commission may specify.

(4) If objections have been filed within the time in said notice specified, the commission shall set a date for a hearing on the application and the objections thereto and shall notify the applicants and the objectors of the time and place. Such hearing shall be held in the designated ground water basin and within the district, if one exists, in which the proposed well will be located or at such other place as may be designated by the commission for the convenience of, and as agreed to by, the parties involved. If after such hearing it appears that there are no unappropriated waters in the designated source or that the proposed appropriation would unreasonably impair existing water rights from such source or would create unreasonable waste, the application shall be denied; otherwise, it shall be granted in accordance with subsection (3) of this section. The commission shall consider all evidence presented at the hearing and all other matters set forth in this section in determining whether the application should be denied or granted.

(5) In ascertaining whether a proposed use will create unreasonable waste or unreasonably affect the rights of other appropriators, the commission shall take into consideration the area and geologic conditions, the average annual yield and recharge rate of the appropriate water supply, the priority and quantity of existing claims of all persons to use the water, the proposed method of use, and all other matters appropriate to such questions. With regard to whether a proposed use will impair uses under existing water rights, impairment shall include the unreasonable lowering of the water level, or the unreasonable deterioration of water quality, beyond reasonable economic limits of withdrawal or use. If an application for a well permit cannot otherwise be granted pursuant to this section, a well permit may be issued upon approval by the ground water commission of a replacement plan that meets the requirements of this article and the rules adopted by the commission. A replacement plan shall not be used as a vehicle for avoiding limitations on existing wells, including but not limited to restrictions on change of well location. Therefore, before approving any replacement plan that includes existing wells, the commission shall require independent compliance with all rules governing those existing wells in addition to compliance with any guidelines or rules governing replacement plans.

(6)(a)(I) No person shall, in connection with the extraction of sand and gravel by open mining as defined in section 34-32-103(9), C.R.S., expose designated ground water to the atmosphere unless said person has obtained a well permit from the ground water commission. If an application for such a well permit cannot otherwise be granted pursuant to this section, a well permit shall be issued upon approval by the ground water commission of a

replacement plan which meets the requirements of this article, pursuant to the guidelines or rules and regulations adopted by the commission.

(II) Any person who extracted sand and gravel by open mining and exposed ground water to the atmosphere after December 31, 1980, shall apply for a well permit pursuant to this section and, if applicable, shall submit a replacement plan prior to July 15, 1990.

(b) If any designated ground water was exposed to the atmosphere in connection with the extraction of sand and gravel by open mining as defined in section 34-32-103 (9), C.R.S., prior to January 1, 1981, no such well permit or replacement plan shall be required to replace depletions from evaporation; except that the burden of proving that such designated ground water was exposed prior to January 1, 1981, shall be upon the party claiming the benefit of this exception.

(c) Any person who has reactivated or reactivates open mining operations which exposed designated ground water to the atmosphere but which ceased activity prior to January 1, 1981, shall obtain a well permit and shall apply for approval of a replacement plan or a plan of substitute supply pursuant to paragraph (a) of this subsection (6).

(d) In addition to the well permit filing fee required by section 37-90-116, the commission shall collect the following fees:

(I) For persons who exposed ground water to the atmosphere on or after January 1, 1981, but prior to July 15, 1989, one thousand three hundred forty-three dollars; except that, if such plan is filed prior to July 15, 1990, as

required by subparagraph (II) of paragraph (a) of this subsection (6), the filing fee shall be seventy dollars if such plan includes ten acres or less of exposed ground water surface area or three hundred fifty dollars if such plan includes more than ten acres of exposed ground water surface area.

(II) For persons who expose ground water to the atmosphere on or after July 15, 1989, one thousand three hundred forty-three dollars regardless of the number of acres exposed. In the case of new mining operations, such fee shall cover two years of operation of the plan.

(III) For persons who reactivated or who reactivate mining operations which ceased activity prior to January 1, 1981, and who enlarge the surface area of any gravel pit lake beyond the area it covered before the cessation of activity, one thousand three hundred forty-three dollars.

(IV) For persons who request renewal of an approved substitute water supply plan prior to the expiration date of the plan, two hundred seventeen dollars regardless of the number of acres exposed.

(V) For persons whose approved substitute water supply plan has expired and who submit a subsequent plan, one thousand three hundred forty-three dollars regardless of the number of acres exposed. An approved plan shall be considered expired if the applicant has not applied for renewal before the expiration date of the plan. The state engineer shall notify the applicant in writing if the plan is considered expired.

(VI) For persons whose proposed substitute water supply plan was disapproved and who submit a subsequent plan, one thousand three hundred forty-three

dollars regardless of the number of acres exposed. The state engineer shall notify the applicant in writing of disapproval of a plan.

(e) Excluding the well permit filing fee required by section 37-90-116(2), all fees collected with a replacement plan shall be credited to the gravel pit lakes augmentation fund, which fund is created in section 37-90-137(11)(f).

(f) A person who has obtained a reclamation permit pursuant to section 34-32-112, C.R.S., shall be allowed to apply for a single well permit and to submit a single replacement plan for the entire acreage covered by the reclamation plan without regard to the number of gravel pit lakes located within such acreage.

(g) Notwithstanding the amount specified for any fee in paragraph (d) of this subsection (6), the commission by rule or as otherwise provided by law may reduce the amount of one or more of the fees if necessary pursuant to section 24-75-402(3), C.R.S., to reduce the uncommitted reserves of the fund to which all or any portion of one or more of the fees is credited. After the uncommitted reserves of the fund are sufficiently reduced, the commission by rule or as otherwise provided by law may increase the amount of one or more of the fees as provided in section 24-75-402(4), C.R.S.

(7)(a) The commission shall allocate, upon the basis of the ownership of the overlying land, any designated ground water contained in the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers. Permits issued pursuant to this subsection (7) shall allow withdrawals on the basis of an aquifer life of one hundred years. The commission shall adopt the necessary rules to carry out the provisions of this subsection (7).

(b) Any right to the use of ground water entitling its owner or user to construct a well, which right was initiated prior to November 19, 1973, as evidenced by a current decree, well registration statement, or an unexpired well permit issued prior to November 19, 1973, shall not be subject to the provisions of paragraph (a) of this subsection (7).

(c)(I) Rights to designated ground water in the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers to be allocated pursuant to paragraph (a) of this subsection (7) may be determined in accordance with the provisions of this section. Any person desiring to obtain such a determination shall make application to the commission in a form to be prescribed by the commission. A fee of sixty dollars shall be submitted with the application for each aquifer, which sum shall not be refunded. The application may also include a request for approval of a replacement plan if one is required under commission rules to replace any depletions to alluvial aquifers caused due to withdrawal of ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(II) The publication and hearing requirements of this section shall also apply to an application for determination of water rights pursuant to this subsection (7).

(III) Any such commission approved determination shall be considered a final determination of the amount of ground water so determined; except that the commission shall retain jurisdiction for subsequent adjustment of such amount to conform to the actual local aquifer characteristics from adequate information obtained from well drilling or test holes.

(d)(I) Any person desiring a permit for a well to withdraw ground water for a beneficial use from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers shall make application to the commission on a form to be prescribed by the commission. A fee of sixty dollars shall be submitted with the application, which sum shall not be refunded.

(II) A well permit shall not be granted unless a determination of ground water to be withdrawn by the well has been made pursuant to paragraph (c) of this subsection (7).

(III) The application for a well permit shall also include a replacement plan if one is required under commission rules to replace any depletions to alluvial aquifers caused due to withdrawal of ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers and the required plan has not been approved pursuant to paragraph (c) of this subsection (7). The publication and hearing requirements of this section shall apply to an application for such a replacement plan.

(IV) The annual amount of withdrawal allowed in any well permits issued under this subsection (7) shall be less than or equal to the amount determined pursuant to paragraph (c) of this subsection (7) and may, if so provided by any such determination, provide for the subsequent adjustment of such amount to conform to the actual aquifer characteristics encountered upon drilling of the well or test holes.

(8) The commission shall have the exclusive authority to issue or deny well permits under this section. The commission shall consider any recommendation by ground

water management districts concerning well permit applications under this section.

37-90-107.5 – Replacement plans.

Any person desiring to obtain an approval of a replacement plan within the boundaries of a designated ground water basin pursuant to the provisions of this article shall make an application to the commission in a form prescribed by the commission. The applicant shall also submit a summary of the application to the commission for publication. If the commission determines the application to be complete, it shall be published pursuant to section 37-90-112 within sixty days after the filing of such an application. If an objection is filed, a hearing shall be held pursuant to section 37-90-113. The commission shall approve the replacement plan if the commission determines that the replacement plan meets the requirements of this article and rules adopted by the commission. A replacement plan shall not be used as a vehicle for avoiding limitations on existing wells, including but not limited to restrictions on change of well location. Therefore, before approving any replacement plan that includes existing wells, the commission shall require independent compliance with all rules governing those existing wells in addition to compliance with any guidelines or rules governing replacement plans.

37-90-108 – Final permit – evidence of well construction and beneficial use – limitations.

(1)(a) After having received a conditional permit to appropriate designated ground water, the applicant, within one year from the date of the issuance of said

permit, shall construct the well or other works necessary to apply the water to a beneficial use.

(b) The applicant, upon completion of the well, shall furnish information to the commission, in the form prescribed by the commission, as to the depth of the well, the water-bearing formations intercepted by the well, and the maximum sustained pumping rate in gallons per minute.

(c) If the well described in the conditional permit is not constructed within one year from the date of the issuance of the conditional permit as provided in this subsection (1), the conditional permit shall expire and be of no force or effect; except that, upon a showing of good cause, the commission may grant one extension of time only for a period not to exceed one year. If the well has been constructed timely but the completion information required by this subsection (1) has not been furnished to the commission, the procedures specified in subsection (6) of this section shall apply.

(2)(a) If the well or wells described in a conditional permit have been constructed in compliance with subsection (1) of this section, the applicant, within three years after the date of the issuance of said permit, shall furnish by sworn affidavit, in the form prescribed by the commission, evidence that water from such well or wells has been put to beneficial use; except that the requirements of this paragraph (a) shall not apply to a well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(b) Such affidavit shall be prima facie evidence of the matters contained therein but shall be subject to objection by others, including ground water management districts,

claiming to be injured thereby and to such verification and inquiry as the commission shall consider appropriate in each particular case.

(c) If such required affidavit is not furnished to the commission within the time and as provided in this subsection (2), the conditional permit shall expire and be of no force or effect except as provided in subsection (4) of this section.

(d) If the well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers has been constructed in compliance with subsection (1) of this section, the applicant shall file a notice with the commission of commencement of beneficial use on a form prescribed by the commission within thirty days after the first beneficial use of any water withdrawn from such well.

(3)(a)(I) To the extent that the commission finds that water has been put to a beneficial use and that the other terms of the conditional permit have been complied with and after publication of the information required in the final permit, as provided in section 37-90-112, the commission shall order the state engineer to issue a final permit to use designated ground water, containing such limitations and conditions as the commission deems necessary to prevent waste and to protect the rights of other appropriators. In determining the extent of beneficial use for the purpose of issuing final permits, the commission may use the same criteria for determining the amount of water used on each acre that has been irrigated that is used in evaluating the amount of water available for appropriation

under section 37-90-107. The provisions of this subparagraph (I) shall not apply to a well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(II) A final permit is not required to be issued for a well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers. For such a well, a conditional permit, subject to the conditions of issuance of such a permit, shall be considered a final determination of a well's water right if the well is in compliance with all other applicable requirements of this article.

(b) In determining the extent of beneficial use prior to the issuance of a final permit, the commission may either increase or decrease the quantity of water and the amount of irrigated acreage, if any, according to the evidence presented to the commission, but no increase shall be permitted which will increase the quantity of water beyond that authorized by the original decree, conditional permit, registration statement, or other well permit issued prior to basin designation or which otherwise will unreasonably affect the rights of other appropriators.

(c) Any owner of an existing valid conditional permit issued before July 1, 1978, may file with the commission an amended statement of beneficial use, in the form prescribed by the commission, on or before December 31, 1979, and not thereafter, if any such change occurred and was approved on or before August 5, 1977.

(4) The procedural requirement that a statement of beneficial use shall be filed shall apply to all permits wherein the water was put to beneficial use since May 17, 1965. If information pertaining to completion of the well as required in subsection (1) of this section has been received but evidence that water has been placed to beneficial use has not been received as of three years after the date of issuance of the conditional permit, the commission shall so notify the applicant by certified mail. The notice shall give the applicant the opportunity to submit proof that the water was put to beneficial use prior to three years after the date of issuance of the conditional permit. The proof must be received by the commission within twenty days after receipt of the notice by the applicant, and, if the conditional permit was issued on or after July 14, 1975, the proof must be accompanied by a filing fee of thirty dollars. If the commission finds the proof to be satisfactory, the conditional permit shall remain in force and effect. The commission shall consider any records of the commission and any evidence provided to the commission and all other matters set forth in this section in determining whether the conditional permit should remain in force and effect.

(5) All final permits shall set forth the following information as a minimum:

(a) The priority date;

(b) The name of the claimant;

(c) The quarter-quarter in which the well is located;

(d) The maximum annual volume of the appropriation in acre-feet per year;

(e) The maximum pumping rate in gallons per minute; and

(f) The maximum number of acres which have been irrigated, if used for irrigation.

(6) The procedural requirement that the well completion information required by subsection (1) of this section be furnished to the commission shall apply to all permits issued after May 17, 1965. If the well has been constructed within twenty-four months after the date of issuance of the permit where the permit was issued before June 7, 1979, or within twelve months after the date of issuance of the permit where the permit was issued on or after June 7, 1979, or by the expiration date of the permit, including any extension, but the completion information has not been furnished to the commission within six months after said allowable time for the well completion, the commission shall so notify the applicant by certified mail. The notice shall give the applicant the opportunity to submit proof that the well was completed within the time specified above or by the expiration date of the permit and to submit the information required by subsection (1) of this section and a showing that, due to excusable neglect, inadvertence, or mistake, the applicant failed to submit the evidence and information on time. The proof and information must be received by the commission within twenty days after receipt of the notice by the applicant and must be accompanied by a filing fee of thirty dollars. If the commission finds the proof to be satisfactory, the permit shall remain in force and effect. The commission shall consider any records of the commission and any evidence provided to the commission and all other matters set forth in this section in determining whether the permit should remain in force and effect.

(7) Notwithstanding the amount specified for any fee in this section, the commission by rule or as otherwise

provided by law may reduce the amount of one or more of the fees if necessary pursuant to section 24-75-402(3), C.R.S., to reduce the uncommitted reserves of the fund to which all or any portion of one or more of the fees is credited. After the uncommitted reserves of the fund are sufficiently reduced, the commission by rule or as otherwise provided by law may increase the amount of one or more of the fees as provided in section 24-75-402(4), C.R.S.

37-90-109 - Priority - discontinuance orders - grounds.

(1) Priority of claims for the appropriation of designated ground water shall be determined by the doctrine of prior appropriation. All claims based on actual taking of designated ground water for beneficial use prior to May 17, 1965, shall be determined by the doctrine of prior appropriation and shall relate back to the date of placing designated ground water to beneficial use. All claims for the beneficial use of designated ground water initiated after May 17, 1965, shall relate back to the date of filing of an application with the commission, unless such application is rejected.

(2) In order to establish priority of a claim to appropriate designated ground water which has existed prior to May 17, 1965, a priority date shall be awarded to each well based upon the time the water was first applied to a beneficial use. The date shown in the records now filed in the state engineer's office shall be prima facie evidence of the date the water was first applied to beneficial use. All wells constructed as replacements for or as supplements to original wells for the same beneficial use shall be

considered as a unit and awarded a priority date of the earliest well.

(3) As soon as practical after the establishment of a designated ground water basin, the commission shall establish tentative priority dates for the respective wells within such designated ground water basin, or subdivisions thereof, in accordance with the information contained in its files. The commission may require such additional information from the well claimant as will permit it to make a proper determination of the priority date and may request such other information as is required to be set forth in a final permit pursuant to section 37-90-108(5). If the claimant fails or refuses to furnish the requested information within a period of thirty days, the commission may proceed to make a determination from the records available.

(4) After establishing the proposed priority date and after receiving the information required by section 37-90-108(5) for the final permit on claims for the beneficial use of designated ground water, the commission shall order the state engineer to issue a final permit to appropriate designated ground water in the manner and pursuant to the standards set forth in section 37-90-108 for final permits; except that a final permit is not required to be issued for a well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers and except that this section shall not apply to any final priority lists established by the commission prior to January 1, 1985, and any final permits issued pursuant to said lists.

(5) and (6) Repealed.

37-90-110 – Powers of the state engineer.

(1) In the administration and enforcement of this article and in the effectuation of the policy of this state to conserve its ground water resources and for the protection of vested rights, the state engineer is empowered:

(a) To require all flowing wells to be equipped with valves so that the flow of water can be controlled;

(b) To require both flowing and nonflowing wells to be so constructed and maintained as to prevent the waste of ground waters through leaky wells, casings, pipes, fittings, valves, or pumps, either above or below the land surface;

(c) To go upon all lands, both public and private, for the purpose of inspecting wells, pumps, casings, pipes, fittings, and measuring devices, including wells used or claimed to be used for domestic or stock purposes;

(d) To order the cessation of the use of a well pending the correction of any defect that the state engineer has ordered corrected;

(e) To commence actions to enjoin the illegal opening or excavation of wells or withdrawal or use of water therefrom and to appear and become a party to any action or proceeding pending in any court or administrative agency when it appears that the determination of such action or proceeding might result in depletion of the ground water resources of the state contrary to the public policy expressed in this article or might injure vested rights of other appropriators;

(f) To take such action as may be required to enforce compliance with any regulation, control, or order promulgated pursuant to the provisions of this article.

37-90-111 – Powers of the ground water commission – limitations.

(1) In the administration and enforcement of this article and in the effectuation of the policy of this state to conserve its designated ground water resources and for the protection of vested rights and except to the extent that similar authority is vested in ground water management districts pursuant to section 37-90-130(2), the ground water commission is empowered:

(a) To supervise and control the exercise and administration of all rights acquired to the use of designated ground water. In the exercise of this power it may, by summary order, prohibit or limit withdrawal of water from any well during any period that it determines that such withdrawal of water from said well would cause unreasonable injury to prior appropriators; except that nothing in this article shall be construed as entitling any prior designated ground water appropriator to the maintenance of the historic water level or any other level below which water still can be economically extracted when the total economic pattern of the particular designated ground water basin is considered; and further except that no such order shall take effect until six months after its entry.

(b) To establish a reasonable ground water pumping level in an area having a common designated ground water supply. Water in wells shall not be deemed available to fill the water right therefor if withdrawal therefrom of the amount called for by such right would, contrary to the

declared policy of this article, unreasonably affect any prior water right or result in withdrawing the ground water supply at a rate materially in excess of the reasonably anticipated average rate of future recharge.

(c) To issue permits for the construction of replacement wells. Any permits issued shall set forth the conditions under which a well may be modified by a change of the well itself or the pumping equipment therefor, by the drilling of a replacement well, or otherwise, in order to make it possible for the owner of a well to obtain the water to which such owner may be entitled by virtue of his original appropriation.

(d) In the exercise of any of the powers or duties conferred by this section, to confer and consult with the board of directors of the ground water management district board in the affected area, if any such board exists, before promulgating any orders or regulations which would affect the district in general;

(e) To order the total or partial discontinuance of any diversion within a ground water basin to the extent the water being diverted is not necessary for application to a beneficial use;

(f) In any area where a ground water management district has not been formed, to prescribe satisfactory and economical measuring methods for the measurement of water levels in and the amount of water withdrawn from wells and to require reports to be made at the end of each pumping season showing the date and water level at the beginning of the pumping season, the date and water level at the end of the pumping season, and showing any period of more than thirty days' cessation of pumping during such pumping season;

(g) Upon application therefor by any permit holder, to authorize a change in acreage served, volume of appropriation, place, time, or type of use of and by any water right, or of any well location, either conditional or final, granted under the authority of the commission but only upon such terms and conditions as will not cause material injury to the vested rights of other appropriators. No such change that increases the volume of appropriation beyond that authorized by the original decree, conditional permit, registration statement, or other well permit issued prior to basin designation shall be authorized, and no such change shall be approved until after publication of such application as provided in section 37-90-112; except that publication shall not be required to approve a temporary change pursuant to the rules adopted by the commission and except that publication shall not be required for replacement wells that are relocated no further than the maximum distance allowed by district rules and regulations without prior board approval or by commission policy where no district exists or where no district rule has been adopted.

(h) To adopt rules necessary to carry out the provisions of this article.

(2) No supplemental wells or alternate point of diversion wells shall be allowed in any area of any designated ground water basin in which the proposed well or wells combined would deplete the aquifer in excess of the rate of depletion prescribed by the ground water commission or by the ground water management district rules and regulations.

(3) In the exercise of any of the powers or duties conferred by this section, the commission shall confer and consult with the board of directors of the ground water management district board in the affected areas, if any such board exists, before promulgating any orders or regulations which would affect the district in general, and shall request written recommendations from the board of any existing district within which the conditional or final permit has been issued, before taking final action on any request or application made pursuant to this section.

(4) In any area within a designated ground water basin which has not been included within the boundaries of a ground water management district, the commission has the authority to exercise any power given by this article to the board of directors of a ground water management district, but, before instituting control measures pursuant to section 37-90-130, the commission shall follow the procedures set out in section 37-90-131.

(5) Notwithstanding any other provision of this article, the commission shall allocate, upon the basis of ownership of the overlying land, any designated ground water contained in the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers. Permits issued pursuant to this subsection (5) shall allow withdrawals on the basis of an aquifer life of one hundred years.

37-90-112 – Notice – publication.

(1) When any notice is required to be published under any section of this article, including notice of elections, it shall be deemed to mean a publication in a newspaper of general circulation in each of the counties concerned. Publication of all notices shall be once each

week for two successive weeks. The notice shall state the hour and date of the commencement of hearings on the subject matter of the notice; the place at which the hearings will be held; the place where written objections may be filed; and the final date by which written objections will be received; or, if for an election, the date, hours, and polling places.

(2) All objections, either to the published notice or any matter contained therein, shall be in writing and shall briefly state the nature of the objection and shall be filed within the time and at the place designated in the notice.

(3) The time for filing any written objections to notices described in this article shall extend to thirty days following the last publication of the notice.

37-90-113 – Hearings.

(1) Hearings on all matters to be heard by the commission shall be held within the boundaries of the designated ground water basin and within the ground water management district, if one exists, in which the water rights directly involved are situated or at such other place as may be designated by the commission for the convenience of, and as agreed to by, the parties involved. The hearings shall be conducted before the commission under reasonable rules and regulations of procedure prescribed by it. All parties to the hearing, including the commission, have the right to subpoena witnesses, who shall be sworn by the chairman or acting chairman of the commission to testify under oath at the hearing. All parties to the hearing shall be entitled to be heard either in person or by attorney.

(2) In any hearings required to be conducted by the commission, it may, in its discretion, have such hearings conducted before such agent as it may designate, either alone or in conjunction with the appearance of the commission if the agent is technically qualified to conduct or assist in such hearings. Unless agreed otherwise by all parties to a hearing or unless ordered otherwise by the commission due to extenuating circumstances, a hearing pursuant to this section shall be held within one hundred eighty days after the filing of a request for such a hearing. Appeals of rulings of the agent designated by the commission shall be reviewed at any regular or special commission meeting at the location chosen by the commission for that meeting.

(3) At any hearing or proceedings conducted or authorized by the commission affecting any water rights, either existing or potential, within any ground water management district, the commission shall receive and fully consider the testimony and recommendations of the board of directors or authorized agents of said district, if such testimony and recommendations are offered on behalf of the affected district.

37-90-114 – Other administrative hearings.

Any person claiming to be injured within the boundaries of a designated ground water basin by any act of the state engineer or commission under the provisions of this article, or the failure of the state engineer or commission to take any action under the provisions of this article, except as provided for the small capacity wells in section 37-90-105, shall file a written petition with the commission stating the basis of the alleged injury. Thereafter, only

upon request by a petitioner and upon thirty days' written notice to any adverse party, the commission shall conduct a hearing upon the petition in the manner provided in section 37-90-113. If notice of any such act has been published pursuant to section 37-90-112 and no hearing has been requested pursuant to such notice, this section shall not be construed to create a subsequent or additional right to request a hearing concerning such act.

37-90-115 – Judicial review of actions of the ground water commission or the state engineer.

(1)(a) Any party, including a ground water management district, adversely affected or aggrieved by any decision or act of the ground water commission, except for the adoption of rules, under the provisions of this article or by a decision or act of the state engineer under section 37-90-110 may take an appeal to the district court in the county wherein the water rights or wells involved are situated.

(b)(I) The notice of such appeal shall be served by the appellant upon the state engineer or the commission and all interested parties within thirty days after the notice of such decision or act and, unless such appeal is taken within said time, the action of the state engineer or the commission shall be final and conclusive. For purposes of service only, "all interested parties" shall be limited to those parties which appeared at, and were granted party status in, any administrative hearing held by the commission or state engineer concerning the decision or act from which the appeal is taken. If no administrative hearing has been held, notice of such appeal shall be given by publication pursuant to section 37-90-112.

(II) Notice of such appeal, proof of service, and docketing of the appeal in the district court shall be accomplished in the same manner as any other civil suit originally commenced in the district courts of this state. Costs shall be charged to the appellant as in any other civil suit.

(III) Proceedings upon appeal shall be de novo; except that evidence taken in any administrative proceeding appealed from may be considered as original evidence, subject to legal objection, as if said evidence were originally offered in such district court.

(IV) It is the duty of the commission or the state engineer, upon being served with a notice of appeal pursuant to this section, to transmit to the district court to which the appeal is taken the papers, maps, plats, field notes, orders, decisions, and other available data affecting the matter in controversy or certified copies thereof, which certified copies shall be admitted in evidence as of equal validity with the originals.

(V) For the purpose of maximizing continuity in the disposition of designated ground water cases, on or before January 10 of each year, the supreme court shall designate or redesignate a designated ground water judge for each designated ground water basin, who shall be selected from a judicial district within which some part of that designated ground water basin lies, and any vacancy that occurs during such year shall be filled by designation of the supreme court. The services of each designated ground water judge shall be in addition to such judge's regular duties as a district judge but shall take priority over such regular duties, and the schedules of the district judges in each such judicial district shall be arranged and adjusted

so that the designated ground water judge shall be free to hear designated ground water cases. All cases relating to designated ground water which are filed in each judicial district shall be assigned to the designated ground water judge, and all proceedings regarding said cases shall be heard by the designated ground water judge. If it becomes necessary during any year for the proper handling of designated ground water cases in any judicial district, the supreme court shall designate one or more additional designated ground water judges from that judicial district or may make temporary assignments of other judges to hear such cases.

(2) Any party adversely affected or aggrieved by a rule adopted by the ground water commission may take an appeal pursuant to section 24-4-106, C.R.S.

37-90-116 – Fees – ground water publication fund.

(1) The state engineer or the commission shall collect the following fees:

(a) With an application for the use of ground water, sixty dollars, which sum shall not be refunded;

(b) Repealed.

(c) For issuing a permit to modify or replace an existing well, sixty dollars;

(d) For making a copy of a document filed in his office, fifty cents per page or fraction thereof;

(e) For certifying copies of documents, records, or maps, two dollars for each certification;

(f) The actual expenses of publication, if any is required, which sums shall be promptly billed to the applicant and paid prior to the approval of any permit or other application, unless the commission requires the applicant to pay these expenses directly to the newspaper, and the applicant provides a proof of such payment to the commission; except that, when a publication is made to process final permits pursuant to section 37-90-108, such publication expenses shall be paid by the state engineer from the division of water resources ground water management cash fund created pursuant to section 37-80-111.5 (1) (d). All such publication expenses collected by the state engineer or by the commission shall be transmitted to the state treasurer, who shall credit the same to the ground water publication fund, which fund is hereby created. All moneys in the ground water publication fund are hereby continuously appropriated to the division of water resources for the actual expenses of publications. The moneys in the ground water publication fund shall not be credited or transferred to the general fund or to any other fund of the state.

(g) With an objection to an application for the use of ground water, ten dollars, which sum shall not be refunded;

(h) With an application for any change in a well permit, whether conditional or final, submitted pursuant to section 37-90-111(1)(g), sixty dollars, which sum shall not be refunded;

(i) With a request to extend the expiration date on a well permit, other than a well permit issued pursuant to section 37-90-105, sixty dollars.

(2) Departments and agencies of the state of Colorado shall be exempt from the payment of fees for applications for the use of ground water or for a permit to construct a well.

(3) Notwithstanding the amount specified for any fee in subsection (1) of this section, the commission by rule or as otherwise provided by law may reduce the amount of one or more of the fees if necessary pursuant to section 24-75-402(3), C.R.S., to reduce the uncommitted reserves of the fund to which all or any portion of one or more of the fees is credited. After the uncommitted reserves of the fund are sufficiently reduced, the commission by rule or as otherwise provided by law may increase the amount of one or more of the fees as provided in section 24-75-402(4), C.R.S.

37-90-117 – Water conservation board – duties.

The Colorado water conservation board has the power, and it is its duty, to investigate and determine the nature and extent of the ground water resources of the state of Colorado. It is also the duty of said board to study and determine the effect, if any, of the withdrawal of ground water upon aquifer supply and upon the surface flow of streams, and the information obtained thereby shall be made available to the state engineer and the ground water commission and any designated ground water management district. Nothing in this section shall be construed as impairing the authority of the state engineer, the ground water commission, or any ground water management district to make such investigation as it may find necessary or desirable to enable it to perform its duties under this article.

37-90-118 – Ground water management districts – formation.

Within areas determined as designated ground water basins by action of the commission in accordance with section 37-90-106, ground water management districts may be formed in the manner, and having the power, provided in sections 37-90-118 to 37-90-135; but no district shall be organized unless all ground water aquifers containing designated ground water within the geographic boundaries of the district have been included as a part of the district by the commission.

37-90-119 – Creation of districts – proposal – submission – changes – proposed boundaries.

A proposal for the formation of a designated ground water management district must be first submitted to the ground water commission, which shall make a hydrologic, geographic, and geologic evaluation of the proposed boundaries and recommend any changes in such boundaries as are indicated by such evaluation. No further steps for the formation of such district shall be taken until the commission, in writing, gives its consent to the boundaries thereof. The commission shall give either its consent or disapproval of the proposed boundaries within ninety days after the proposal has been submitted to it.

37-90-120 – Management districts – petition – signatures required – filing.

Following receipt of the consent required by section 37-90-119, a petition calling for formation of the proposed district may be filed with the commission. The petition shall be

signed by not less than fifteen percent of the taxpaying electors within the proposed district.

37-90-121 – Management districts – petition – contents – minor defects – amendment.

(1) The petition referred to in section 37-90-120 shall set forth:

(a) The name of the proposed district and boundaries thereof;

(b) A proposed division of the district into divisions as nearly equal in size as may be practicable, and considering the population thereof, each of which is to be represented by a director who is a resident taxpaying elector in such division;

(c) The number of directors that the district shall have if formed, not less than five nor more than fifteen in number, together with the name and address of each of the proposed directors, the division to be represented by each of them, and their terms of office, which shall be so designated that approximately one-half of them shall expire on the first Tuesday in March of the second year after the organization of the district is completed, and the remainder of them on the first Tuesday in March of the fourth year after the organization of the district is completed;

(d) Where the offices of such proposed district are to be maintained; and

(e) A prayer that the organization of the district be submitted to a vote of the taxpaying electors as provided in section 37-90-124.

(2) No petition for the organization of a district with the requisite signatures shall be declared null and void on account of minor defects, but the commission may at any time, prior to final determination of the sufficiency thereof, permit the petition to be amended in form to conform to the facts. Several similar petitions or duplicate copies of the same petition for the organization of the same district may be filed and shall together be regarded as one petition. All petitions, filed prior to the determination of the sufficiency of such petition, shall be considered as though filed with the first petition placed on file.

37-90-122 – Management district – petition – certification of signatures – hearing – notice – publication.

The commission shall examine the petition, and, if it finds that it bears the requisite number of signatures and otherwise meets the stated requirements, it shall thereupon set a date for hearing upon such petition and shall cause notice of such hearing, together with a copy of such petition, to be published, the final publication being not less than ten days nor more than thirty days prior to the date set for such hearing. The cost of such publication shall be paid by the petitioners and shall be advanced by them prior to publication.

37-90-123 – Management districts – hearing – objections – change of boundaries.

At the time set for such hearing, the commission shall examine the petition and hear objections thereto and may order changes in the boundaries thereof by the inclusion or removal of land therefrom upon finding that such change would be hydrologically, geologically, and geographically

sound. The action of the commission may be reviewed by the district court in appeal proceedings filed within twenty days after its decision has been announced, which decision shall be announced within ninety days after the hearing.

37-90-124 – Election on organization.

(1) If, after the completion of the hearing on the feasibility of the organization of a district, it is determined that such district shall be organized, the commission shall forthwith make an order allowing the prayer of the petition, and, by order duly entered upon its record, shall call an election of the taxpaying electors in the district for the purpose of determining whether such district shall be organized, and shall set the date for such election.

(2) The commission shall thereupon publish a notice, the final publication to be not less than ten days nor more than thirty days immediately preceding the election, which notice shall state: The fact of filing of the petition; in summary form, the information required by section 37-90-121(1) to be included in the petition; that an election will be held to decide the question of organization of the proposed district; the date of such election; the polling places at which such election is to be held; the qualifications of those eligible to vote at such election; and the specific question to be submitted.

(3) The commission shall appoint three taxpaying electors of the district as judges for each designated polling place. The election shall be held and conducted as nearly as may be in the same manner as general elections in this state. There shall be no special registration for such election, but, for the purpose of determining qualifications of electors, the judges shall be permitted to use the last

official registration lists of electors residing in the district and a certified list of taxpayers in the district prepared by the county treasurer and, in addition, may require the execution of an affidavit concerning the qualification of any such taxpaying elector to vote.

(4) At such election the voters shall vote for or against the organization of the district. The judges of each polling place shall certify the returns of the election to the ground water commission. If a majority of votes cast at said election are against the organization of the district, the commission shall forthwith dismiss the petition, and no election shall be held on the original petition or another petition for organization of the same district within one year of such dismissal.

(5) If a majority of the votes cast at said election are for the organization of said district, the commission, by order duly entered of record, shall declare the district organized, define the boundaries thereof, and give it the corporate name designated in the petition by which in all proceedings it shall thereafter be known and designate the members of the first board of directors, as named in the organization petition and the districts they represent. Thereupon the district shall be a governmental subdivision of the state of Colorado and a body corporate with all the powers of a public or quasi-municipal corporation.

37-90-125 – Filing decree.

Within thirty days after the district has been declared a corporation by the commission, it shall transmit to the county clerk and recorder of each of the counties in which the district or a part thereof extends copies of the decree of the commission incorporating the district.

37-90-126 – Management district – directors – qualifications – oath – bond – vacancies.

The members of the board of directors shall be resident taxpaying electors within the district. Each member of the board shall take an oath of office, and shall give bond in the sum of five thousand dollars conditioned that he shall faithfully perform the duties of director and of such further office to which he may be elected in such district, and shall account for all funds or property coming into his hands as such director or other officer. Such bonds shall run to the district, shall be signed by a surety approved by the ground water commission, and shall be filed and recorded in the office of the state engineer. When such bond is so filed and approved, such person so elected shall take and hold office until his successor is elected and qualified. When a vacancy occurs on the board, such vacancy shall be filled by the remaining members of the board.

37-90-127 – Management district – directors – election – term of office.

As the terms of the members of the board of directors expire, their successors shall be nominated by petitions containing the signatures of not less than fifteen percent of the number of qualified taxpaying electors of the division who voted at the last preceding district election, to be filed with the secretary of the district not less than thirty days before the election; thereafter, the members shall be elected for terms of four years by the plurality vote of the taxpaying electors of the division of the district which they represent. Such elections shall be held on the first Tuesday in February preceding the expiration of such terms and

shall be conducted by the district board in the general manner prescribed in section 37-90-124.

37-90-128 – Management district – directors – no compensation – expenses.

The members of the board of directors shall receive no compensation but shall be paid their actual expenses while engaged in the business of such district.

37-90-129 – Management district – officers – election.

The board of directors shall annually elect a president, vice-president, secretary, treasurer, and such other officers as may be necessary.

37-90-130 – Management districts – board of directors.

(1) The district board has the duty and responsibility of consulting with the commission on all ground water matters affecting the district to determine whether proposed restrictions or regulations are suitable for such area, to determine in conjunction with the commission whether the area of the district should be enlarged or contracted, to cooperate with the commission and the state engineer in the assembling of data on the ground water aquifers in the area and the enforcement of regulations or restrictions which may be imposed thereon, and to assist the commission and the state engineer to the end of conserving the ground water supplies of the area for the maximum beneficial use thereof.

(2) After the issuance of any well permit for the use of ground water within the district by the ground water commission as provided in sections 37-90-107 and 37-90-108, the district board has the authority to regulate the use, control, and conservation of the ground water of the district covered by such permit by any one or more of the following methods, but the proposed controls, regulations, or conservation measures shall be subject to review and final approval by the ground water commission if objection is made in accordance with section 37-90-131:

(a) To provide for the spacing of wells producing from the ground water aquifer or subdivision thereof and to regulate the production therefrom so as to minimize as far as practicable the lowering of the water table or the reduction of the artesian pressure;

(b) To acquire lands for the erection of dams and for the purpose of draining lakes, draws, and depressions, and to construct dams, drain lakes, depressions, draws, and creeks, and to install pumps and other equipment necessary to recharge the ground water reservoir or subdivision thereof;

(c) To develop comprehensive plans for the most efficient use of the water of the ground water aquifer or subdivision thereof and for the control and prevention of waste of such water, which plans shall specify in such detail as may be practicable the acts, procedure, performance, and avoidance which are or may be necessary to effect such plans, including specifications therefor; to carry out research projects, develop information, and determine limitations, if any, which should be made on the withdrawal of water from the ground water aquifer or subdivisions thereof; to collect and preserve information

regarding the use of such water and the practicability of recharge of the ground water aquifer; and to publish such plans and information and bring them to the notice and attention of the users of such ground water within the district and to encourage their adoption and execution;

(d) To require the owner or operator of any land in the district upon which is located any open or uncovered well to close or cap the same permanently with a covering capable of sustaining weight of not less than four hundred pounds, except when said well is in actual use by the owner or operator thereof;

(e) To promulgate reasonable rules and regulations for the purpose of conserving, preserving, protecting, and recharging the ground water of the ground water aquifer or subdivision thereof, in conformity with the provisions of this article;

(f) To prohibit, after affording an opportunity for a hearing before the board of the local district and presentation of evidence, the use of ground water outside the boundaries of the district where such use materially affects the rights acquired by permit by any owner or operator of land within the district;

(g) In the control and administration of the quantity of ground water extracted from the aquifer, to adopt such devices, procedures, measures, or methods as it deems appropriate to effectuate this purpose;

(h) To promulgate reasonable rules and regulations with respect to the protection and compensation of the owners of any small capacity wells as defined in section 37-90-105 which may be injured by irrigation wells;

(i) To represent the district at any hearings or proceedings conducted or authorized by the commission affecting any water rights, either actual or potential, within the district;

(j) To exercise such other administrative and regulatory authority concerning the ground waters of the district as, without the existence of the district, would otherwise be exercised by the ground water commission.

(3) All special and regular meetings of the board shall be held at locations which are within the boundaries of the district or which are within the boundaries of any county in which the district is located, in whole or in part, or in any county so long as the meeting location does not exceed twenty miles from the district boundaries. The provisions of this subsection (3) may be waived only if the following criteria are met:

(a) The proposed change of location of a meeting of the board appears on the agenda of a regular or special meeting of the board; and

(b) A resolution is adopted by the board stating the reason for which a meeting of the board is to be held in a location other than under the provisions of this subsection (3) and further stating the date, time, and place of such meeting.

(4) After the issuance of any well permit for a small capacity well within the district pursuant to section 37-90-105, the district has the authority to enforce compliance with the terms and conditions governing the use of the ground water allowed by such permit to ensure that such use is within the scope of what is allowed by section 37-90-105 and the well permit.

37-90-131 – Management district – board of directors – control measures – hearing – notice – publication – order.

(1)(a) Whenever the board of directors determines that controls, regulations, or conservation measures are necessary in order to ensure the proper conservation of ground water within the district, it shall confer with the ground water commission and ground water users within the district. No such measures or regulations shall be instituted until after a public hearing. Notice of such hearing shall be published. Such notice shall state the time and place of the hearing and in general terms the corrective measures or regulations proposed. Within sixty days after such hearing, the board shall announce the measures or regulations ordered to be taken and shall cause notice of such action to be published. The board has the authority to compel compliance with such measures or regulations by an action brought in the district court of the county in which any failure to comply is found to exist.

(b) Any person adversely affected or aggrieved by the announcement of control or conservation measures or regulations adopted by the district board may appeal such decision to the ground water commission by filing a notice of appeal and the grounds therefor with the commission not later than thirty days after the date of last publication. The commission shall hear all such appeals pursuant to section 37-90-113. The commission shall have authority to affirm or reject the measures or regulations adopted by the district or to modify such measures or regulations but only upon consent from the district board. Judicial review of commission actions in such appeals may be taken pursuant to section 37-90-115.

(c) Any person adversely affected or aggrieved by an act of the district board, other than the announcement of control or conservation measures or regulations, has the right to be heard by the board. Such person shall file a written request for a hearing that states the basis of the alleged injury. Unless agreed otherwise by all parties to a hearing or unless otherwise approved by the district due to extenuating circumstances, a hearing shall be held within one hundred eighty days after filing the request for such a hearing. Upon thirty days' written notice to all adverse parties, the district shall conduct a hearing upon the matter. Hearing procedures shall be as informal as possible, with due regard for the rights of the parties. All parties shall have the right to subpoena witnesses and to be heard either in person or by attorney. The district board may have such hearings conducted before an agent or hearing officer. After such hearing, the district board shall issue a written decision containing its findings and conclusions and shall serve its decision upon all parties by first-class mail. Judicial review of such district decisions may be taken in the manner and governed by the standards set forth for review of commission and state engineer decisions in section 37-90-115.

(2) Subject to review by the ground water commission pursuant to subsection (1) of this section, the board may institute control measures or regulations to prescribe satisfactory and economical measuring methods for the measurement of water levels in and the amount of water withdrawn from wells and to require reports to be made at the end of each pumping season showing the date and water level at the beginning of the pumping season, the date and water level at the end of the pumping season,

and any period of more than thirty days cessation of pumping during such pumping season.

37-90-132 – Management district – board of directors – taxes – levy – limitation.

The board of directors may levy and collect annually taxes necessary to finance the activities of such district to the amount of not more than two mills on the dollar of the valuation for assessment of all taxable property within the district. It shall, in accordance with the schedule prescribed by section 39-5-128, C.R.S., certify its mill levy to the board of county commissioners of the counties wholly or partially within the district, who shall extend the same on the county tax list, and the same shall be collected by the county treasurer in the same manner as state and county taxes are collected. In addition, annually the board of directors of the district may assess and certify a special assessment on all water wells, except those wells described in section 37-90-105, in the district not to exceed fifteen cents per acre-foot of the maximum annual volume of the appropriation of each such well. Said assessment shall be collected by the county treasurer in the same manner as other special assessments. It is the duty of the board to apply for and to receive from the county treasurers all money to the credit of the district.

37-90-133 – Management district – claims – warrants – payment.

All claims against ground water management districts may be paid by warrants or orders, duly drawn against the district, as authorized by the board.

37-90-134 – Management district – issuance of bonds – indebtedness – submission to electors.

(1) To pay for the construction, operation, and maintenance of any works, and expenses preliminary and incidental thereto, which the board is authorized to construct for the benefit of the district, the board is authorized to enter into contracts providing for payment in installments or to issue negotiable bonds of the district. If bonds are authorized, the same shall bear interest at a rate such that the net effective interest rate of the issue does not exceed the maximum net effective interest rate authorized, payable semiannually, and shall be due and payable not more than fifty years from their dates. The form, terms, and provisions of said bonds or contracts, provisions for their payment, and conditions for their retirement and calling, not inconsistent with law, shall be vested and determined by the board, and they shall be issued in payment of the works, equipment, expenses, and interest during and after the period of construction. Said bonds or contracts shall be executed in the name of and on behalf of the district and signed by the president of the board, the seal of the district affixed thereto and attested by the secretary of the board. Said bonds or contracts must be in such denominations or upon such conditions as the board determines and shall be payable to bearer and may be registered in the office of the county treasurer of each of the counties wherein the district or part of it is situated, with the interest coupons payable to bearer, which shall bear the facsimile signature of the president of the board. Bond interest shall be exempt from all state, county, municipal, school, and other taxes imposed by any taxing authority of the state of Colorado and shall not be sold at less than par and accrued interest.

(2) Whenever the board incorporated under this article, by resolution adopted by majority of said board, determines that the interests of said district and the public interest or necessity demand the acquisition, construction, or completion of any source of water supply, waterworks, or other improvements or facilities, or the making of any contract with the United States or other persons or corporations, to carry out the objects and purposes of said district, wherein the indebtedness or obligation is created, to satisfy which shall require a greater expenditure than the ordinary annual income and revenue of the district permits, said board shall order the submission of the proposition of incurring such obligation or bonded or other indebtedness for the purposes set forth in said resolution to the qualified taxpaying electors of the district at an election held for that purpose. Any election held for the purpose of submitting any proposition of incurring such obligation or indebtedness may be held separately or may be consolidated or held concurrently with any other election authorized by law at which such qualified taxpaying electors of the district are entitled to vote. Notice of the resolution and election shall be published in a form sufficient to apprise the taxpaying electors of the objects and purposes for which the indebtedness is proposed to be incurred, the estimated cost of the works or improvement, the amount of principal of the indebtedness to be incurred therefor, and the maximum rate of interest to be paid on such indebtedness. Such resolution and notice shall also fix the date upon which such election shall be held, the manner of holding the same, and the method of voting for or against the incurring of the proposed indebtedness. Such election shall be held in the same general manner as in this article provided for the election of directors. The bond issue or indebtedness

proposed shall not be valid unless a majority of those voting at the election held for that purpose vote in favor of such bond issue or indebtedness in accordance with the terms of the resolution.

37-90-135 – Management district – dissolution – procedure – funds – disposition.

If there are no debts outstanding, the board of directors may, on its own motion or on the written petition of twenty percent of the taxpaying electors of the district, request of the ground water commission that the question of dissolution of such district be submitted to the electors of the district. The commission shall fix the date of such election, notice of which shall be given and which shall be conducted in the same manner as elections for the formation of such districts. If a majority of those voting on such question vote in favor of dissolution, the commission shall so certify to the county clerk and recorders of the counties involved and the district shall thereupon be dissolved. The question of dissolution shall not be submitted more often than once every twelve months. In case a district is dissolved the funds on hand or to be collected shall be held by the treasurer, and the directors shall petition the district court of the county in which the main office is located for an order approving the distribution of funds to the taxpayers of the district on the same basis as collected.

37-90-139 – Existing beneficial uses not recorded – fee.

Existing uses of ground water put to beneficial use prior to May 17, 1965, not of record in the office of the state engineer on April 21, 1967, may be recorded upon written

application and payment of a filing fee of twenty-five dollars and shall retain the date of initiation when first put to beneficial use, but no such recording shall be accepted after December 31, 1968.

37-90-143 – Owners of well permits – update for name and address.

(1) Effective July 1, 1994, any owner of an unexpired well permit issued pursuant to this article or article 92 of this title who changes a name or mailing address from that on file with the office of the state engineer shall file an update to the name or mailing address with the state engineer by January 1, 1995, on a form prescribed by the state engineer.

(2) Effective January 1, 1995, any owner of an unexpired well permit issued pursuant to this article or article 92 of this title who changes a name or mailing address from that on file with the state engineer shall file, in person, by mail, or by fax, an update with the state engineer within sixty days after the date of the change, on a form prescribed by the state engineer.

APPENDIX H3

STATE OF COLORADO

GROUND WATER COMMISSION
Division of Water Resources
Department of Natural Resources

April 8, 1998

POLICY MEMORANDUM 95-3

APPROVED BY THE COMMISSION ON FEBRUARY 24, 1995
AMENDED BY THE COMMISSION ON FEBRUARY 13, 1998

POLICY OF THE COLORADO GROUND WATER COMMISSION PURSUANT TO RULE 8, OF THE RULE AND REGULATIONS FOR THE MANAGEMENT AND CONTROL OF DESIGNATED GROUND WATER, CONCERNING THE USE OF FLOW METERS OR POWER METERS (AS AN ALTERNATE METHOD OR DEVICE FOR WATER MEASUREMENT)

1. SCOPE

This policy is applicable to all high capacity wells located in Designated Ground Water Basins that have permits with conditions requiring measurement of withdrawals of water.

2. DEFINITIONS

2.1 The following definitions are applicable to this policy governing the measurement of high capacity wells in Designated Ground Water Basins:

2.1.1 "Compound system" means a system where the power meter records electrical

usage from any electrical device other than the pumping systems from a single well and its attached sprinklers.

2.1.2 "Complex system" means any system where the total dynamic head at the pump will vary due to multiple discharge locations in a pipeline, or where the method of delivery will vary between open discharge, gated pipe, or sprinkler system during a single irrigation season, or where multiple wells discharge in to a common pipeline.

2.1.3 "District" means a Ground Water Management District organized under Article 37-90 of the Colorado Revised Statutes.

2.1.4 "High capacity well(s)" are those wells issued pursuant to 37-90-107, C.R.S., that produce designated ground water as defined in section 37-90-103(6), C.R.S.

2.1.5 "Inactive well" means any well that is not in use and is disconnected from a power source.

2.1.6 "Power coefficient" means the amount of electrical energy expressed as kilo-watt hours (KWH) consumed in pumping one acre-foot of water.

2.1.7 "Field certified" means to verify that a flow meter is in accurate working condition under field conditions when installed or to verify that testing procedures approved by the Commission are properly adhered to when determining a power coefficient. These procedures are to be conducted under the supervision of an individual or entity

annually approved for field certification by the Colorado Division of Water Resources.

2.2 Any other term used in this policy that is defined in Article 37-90 or 37-92 is used with the meaning given therein.

3. GENERAL REQUIREMENTS

3.1 All wells within the scope of this policy shall either be equipped with a totalizing flow meter that is installed and maintained according to manufacturer's specifications and recommendations or be tested to determine a power coefficient.

3.2 The Commission may adopt standards and specifications for the installation, calibration, testing, repair and maintenance of flow meters, or for well testing procedures to determine power coefficients.

3.3 If the well is part of a compound system, or if the pump is driven by an internal combustion engine, the owner or user of the well must utilize the totalizing flow meter method and the provisions of section (4) of this policy.

3.4 If the well is part of a complex system the owner or user of the well must utilize the totalizing flow meter method and the provisions of section (4) of this policy shall apply; except that the power coefficient method may be utilized after obtaining Commission approval and subject to the following:

(a) That power coefficients are field certified for the well under every method of delivery and for every irrigation system configuration for which the well will be operated, or as required by the Commission.

(b) The Commission shall use the lowest power coefficient to calculate annual withdrawal from the well.

(c) Calculated water withdrawals obtained by using the lowest power coefficient method are not acceptable for any type of future historic use determination.

3.5 All flow measuring equipment or devices utilized in field certification must have an accuracy within plus or minus 2 percent.

3.6 No water shall be withdrawn from any well not in compliance with this policy except to determine a power coefficient or to field certify a totalizing flow meter.

4. USING A TOTALIZING FLOW METER

4.1 Any owner of a well within the scope of this policy who installs a totalizing flow meter after the effective date of this policy shall provide written documentation, to the Commission and the district on a form prescribed by the Commission, verifying the proper meter installation and field certification. This documentation shall be received by the Commission and the district prior to any use of the well.

4.2 The owner of any well with a flow meter that is required pursuant to Rule 8 of the Designated Basin Rules may be required to submit the form specified in section (4.1) of this policy at the request of the Commission.

4.3 A totalizing flow meter shall be considered acceptable for the purpose of this policy if it meets the following specifications:

4.3.1 The totalizing flow meter is capable of having an operating accuracy of plus or minus 5 percent under the manufacturer's recommendations.

4.3.2 The totalizing flow meter shall be constructed from a material acceptable to the Commission of suitable strength and rigidity to maintain its shape and integrity under all normal field conditions. Where metals subject to rust or corrosion (cast iron, steel, or aluminum) are used, the entire surface of the body of the meter shall be protected with an impervious coating applied by the manufacturer.

4.3.3 Totalizing flow meters shall be equipped with a direct reading odometer type totalizing register and rate of flow indicator sealed in a water tight (weather proof) case equipped with a viewing glass. The totalizing register shall provide direct readings in acre-feet or gallons, and have sufficient recording digits to assure that "roll over" to zero does not occur within three years. The rate of flow indicator shall be either a direct display of rate of flow in gallons per minute, or a center sweep hand indicating gallons or acre-feet per revolution.

4.3.4 The totalizing register and rate flow indicator may be required by the Commission, to be sealed with a device or procedure acceptable to Commission (e.g. a wire and lead seal) to prevent tampering or unauthorized removal.

4.4 When a totalizing flow meter is used, it shall be the owner's responsibility to keep the meter in

acceptable operating condition as to provide a cumulative, accurate record of withdrawals.

4.5 The Commission and the District shall be notified in writing of the date and person performing the field certification of a flow meter 3 days in advance of this procedure.

4.5.1 Totalizing flow meters installed within the scope of this policy on or after the effective date of this policy shall be field certified when installed.

4.5.2 Totalizing flow meters installed on said wells as of the effective date of this policy shall be field certified prior to any use of the well in the calendar year following the effective date of this policy, and be field certified every four years thereafter; except that any meter installed and field certified on or after February 24, 1995 and prior to the effective date of this policy shall be field certified every four years thereafter from the date of the last field certification.

4.5.3 Totalizing flow meters installed on wells that are required to be administered pursuant to Rule 7 of the Designated Basin Rules are required to be field certified every four years after the date of original installation.

4.5.4 Other flow meters that are required to be installed pursuant to Rule 8 of the Designated Basin Rules may be required to be field certified at the request of the Commission.

4.6 If the flow meter is not operational, the well shall not be pumped unless an operating flow

meter is installed or unless a specific backup water measurement program approved by the Commission is put into effect.

5. USING A POWER COEFFICIENT

5.1 Any owner of a well within the scope of this policy who utilizes a power coefficient method shall provide written documentation, to the Commission and the district on a form prescribed by the Commission, evidence that the power coefficient was properly determined prior to any use of water from the well.

5.2 Power coefficients in existence on said wells as of the effective date of this policy shall be field certified on or after the effective date of this policy and field certified every four years thereafter; except that any field certification of a power coefficient determined on or after February 24, 1995 and prior to the effective date of this policy shall be field certified every four years thereafter from the date of the last field certification.

5.3 The Commission and the District shall be notified in writing of the date and person performing the field certification 3 days in advance of the field certification.

5.4 When doing a field certification, it shall be conducted when the pumping system has stabilized, i.e., both operating pressure and pumping drawdown has not changed more than 10% in the last hour.

5.5 If there is any change or adjustment of the well pump, pump motor, irrigation system (e.g. piping, nozzling, etc.), system pressure, pumping lift or any other equipment or factor that would affect the efficiency of the pumping system and

thus change the power coefficient the well must be field certified.

5.5.1 The Commission and District shall be notified within 7 days of the change or adjustment.

5.5.2 The well must be field certified within 30 days of reinitiating the use of the well to determine a new power coefficient.

6. DATA SUBMITTAL

6.1 Data as to the annual amounts of water pumped from wells within the scope of this policy shall be for the calendar year and shall be filed with the Commission and District no later than February 15, of each year for the prior years withdrawals.

6.2 Data for wells which are required to measure withdrawals but are not presently required to report these withdrawals to the Commission or District, shall record the meter readings as required by the Commission or District, and to retain these records and submit such data at the request of the Commission or District.

6.3 Data shall be complete and shall be submitted on forms prescribed by the Commission. Incomplete forms will not be considered adequate to fulfill the data submittal requirements of this policy.

6.4 Consent to release power company data to the Commission and the District shall be included with the data submittal.

7. INACTIVE WELLS

7.1 Inactive wells are excluded from this policy provided a sworn affidavit, on a form prescribed by the Commission, is filed with the Commission and District by February 15 of each year, stating the status of the well as inactive.

7.2 If the well owner desires to have the power to the well remain connected for any reason, written approval of such must be first obtained from the Commission.

7.3 Should the well become active at any time, all aspects of this policy are immediately in effect.

8. COMPLIANCE

8.1 Failure to comply with any of this policy may subject the well owner and/or user to court proceedings and the Commission's and the District's costs, including reasonable attorneys fees, associated with enforcement of this policy pursuant to section 37-90-110, C.R.S.

8.2 Prior to filing any court action, the Commission and District shall notify the well owner of the violation in writing and shall advise the well owner of the date by which the violation must be corrected to avoid court proceedings, which date shall be at least ten days following the mailings of the notice to the well owner or personal service on the well owner.

9. SEVERABILITY

If any portion of this policy is found to be invalid, the remaining portion of the policy shall remain in force and unaffected.

10. VARIANCE

When the strict application of any provisions of this policy would cause unusual hardship, the Commission may grant a variance for a specific instance provided a written request for the variance is made to the Commission and the Commission finds the request justifiable.

Hal D. Simpson
Executive Director
Colorado Ground Water Commission

APPENDIX H4

RULES FOR SMALL CAPACITY WELL PERMITS IN DESIGNATED GROUND WATER BASINS

Rule 1. Authority: These rules are promulgated pursuant to Sections 37-80-102 (1)(g) and 37-90-105(2), C. R. S.

Rule 2. Scope and Purpose:

These rules shall be applicable to all well permits issued by the State Engineer pursuant to Section 37-90-105, C.R.S. for small capacity wells in the Designated Ground Water Basins.

These rules are intended to establish a fair and impartial method for validation and expiration of well permits issued by the State Engineer pursuant to Section 37-90-105, C.R.S. These rules shall be construed to carry out this purpose.

Rule 3. New Permits – Permit Validation – Evidence of Beneficial Use: A small capacity well permit issued on or after the effective date of these rules shall be considered valid provided the well is constructed timely and a well construction and test report is filed with the State Engineer in accordance with the Water Well Construction Rules (2 CCR 402-2). Evidence of beneficial use shall not be required for such a permit. If evidence of beneficial use is filed with the State Engineer it shall not, in any way, alter the terms of the permit.

Rule 4. Previously Issued Permits – Permit Validation – Evidence of Beneficial Use: A small capacity well permit issued prior to the effective date of these rules shall be considered valid provided the well is constructed timely and a well construction and test report is filed with the State Engineer in accordance with the Water Well Construction Rules (2 CCR 402-2). The requirement of

evidence of beneficial use, if it was required under a previous rule, shall be considered waived. If a permit condition refers to a potential limitation on allowed annual acre-feet due to a requirement of evidence of beneficial use under a previous rule, that limitation shall also be considered waived. If evidence of beneficial use is filed with the State Engineer it shall not, in any way, alter the terms of the permit.

Rule 5. Restrictions by District Rules: As provided by Section 37-90-105, C.R.S., the ground water management districts within the designated ground water basins have been authorized, by rules and regulations, to further restrict or expand the limitations for issuance of small capacity well permits within their respective districts. The State Engineer shall implement such limitations established by valid management district rules.

Rule 6. Replacement of Previous Rule: The previous rule titled "Rules for Small-Capacity Well Permits in Designated Ground Water Basins", 2 CCR 402-4, adopted by the State Engineer effective November 1, 1991, shall be replaced by these rules on the effective date of these rules.

Rule 7. Severability: If any portion of these rules is found to be invalid, the remaining portion of the rules shall remain in force and unaffected.

Rule 8. Variance: When the strict application of any provision of these rules or previous versions of these rules present practical difficulty or unusual hardship, the State Engineer may grant a variance for a specific instance provided a written request for the variance is made to the State Engineer and the State Engineer finds the request justifiable.

Rule 9. Statement of basis and purpose incorporated by reference: the statement of basis and purpose for these rules for small capacity well permits is incorporated by reference as part of these rules.

Rule 10. Effective Date: These rules shall become effective on July 1, 1999.

APPENDIX H5

STATE OF COLORADO

OFFICE OF THE STATE ENGINEER
Division of Water Resources
Department of Natural Resources

October 13, 1994

POLICY MEMORANDUM 94-4

SUBJECT: Small Capacity Commercial Wells for Confined Animal Feeding Operations Designated Ground Water Basins

Effective immediately, the following policy will be used to permit the use of ground water through small capacity commercial well permits for confined animal feeding operations within designated ground water basins. This policy shall be modified or revoked only in writing.

1) The total amount of water permitted to be withdrawn from a small capacity commercial well shall be limited to the amount of water estimated to be necessary for the operation of the facility and safe disposal of the effluent, considering the requirements of this policy. The State Engineer's rules for small capacity well permits in designated basins, the provisions of Section 37-90-105, C.R.S. and the rules and regulations of local ground water management districts shall also apply.

2) The applicant may either accept the State Engineer's guidelines (to be developed) for withdrawal limitations or supply a report detailing the amount of water estimated to be necessary to operate that particular facility. This report shall include an estimate of total water use, the estimated water use in individual categories including (as appropriate), but not limited to, drinking, flushing, washing, and office use, and any information necessary to verify the water use

estimates. This report is subject to review and acceptance by the State Engineer. All applications must include a description of the land on which the effluent will be disposed and the Permit Nos. of any irrigation wells which are permitted to irrigate the subject land.

3) Diversion of water from a small capacity commercial well for dilution of effluent, except for water used in the normal operation of the confined animal feeding operation for drinking, flushing, washing and office use, is not permitted unless specifically applied for in the well permit application and approved after consideration for the following criteria:

a. Supporting documentation for the use of water requested for the required dilution must be provided with the well permit application. Only the minimum amount of water necessary may be permitted for dilution use.

b. The use of water from a small capacity commercial well to dilute effluent will not be permitted if it is determined by staff that the intent and/or effect is to obtain a benefit of crop irrigation through a small capacity well.

c. The use of water from other wells for the dilution of effluent must be approved in writing by the State Engineer's Office and/or the Ground Water Commission, as appropriate, prior to commencement of such action.

4) The disposal of effluent through application onto dry land or onto land permitted for irrigation may not be commenced until authorized, if required, by the Colorado Water Quality Control Commission pursuant to the "Confined Animal Feeding Operations Control Regulation: 4.8.0 (5 CCR 1002-19) and/or other requirements of that agency. It shall be the responsibility of the operator to determine if such authorization

is mandated. A memorandum of understanding between this office and the office of the Water Quality Control Commission will be drafted to facilitate safe disposal of effluent.

5) A totalizing flow meter must be installed on the wellhead to measure the total production of the small capacity commercial well. Flow meters should be easily accessible so that authorized representatives of this office and the local Ground Water Management District may inspect and read these meters at any reasonable time. Furthermore, flow meters must either be accessible without entering restricted areas of the facility or must be equipped with a remote display that is accessible without entering restricted areas of the facility.

6) Unless otherwise specified by the approval, annual reports must be submitted to the District and/or this office by February 15 of each year for the preceding calendar year. These reports must provide the total withdrawal of water from the small capacity commercial well and the total and average number of animals present that calendar year.

Explanation of the Rationale for Policy Related to Permitting the Use of Ground Water through Small Capacity Wells for Confined Animal Feeding Operations.

The development of this policy was due specifically to concerns expressed to the State Engineer's Office about the use of small capacity commercial wells for the disposal of effluent through land application. On one side of the issue is the fact that new appropriations for irrigation wells can no longer be obtained in most designated basins, and that through land application for effluent and water used to dilute the effluent, the effective irrigation of

additional lands may be possible. This would circumvent the authority of the Ground Water Commission and the appropriation process under Section 37-90-107, C.R.S., and possibly cause unreasonable impairment of existing water rights. On the other side of the issue is the fact that land application of effluent, if properly administered, may be a practical, efficient, economic and safe method of effluent disposal.

Considering both arguments, the use of ground water of the disposal of effluent through land application can be permitted through a small capacity commercial well since this may generally not result in the additional use of water over that required for the operation of a confined animal feeding operation which uses lagoons for effluent disposal. This is justified through the assumption that the present practice of using lagoons for effluent disposal usually results in the evaporation of all water that reaches the lagoon. Additional use that occurs due to necessary dilution of the effluent may be a valid use, providing that the intent and/or effect is not illegal crop irrigation through a small capacity well.

Specific problems that the above policy is designed to alleviate are as follows:

1) Irrigation of additional acres through the disposal of effluent onto lands not permitted to be irrigated.

2) Use of small capacity commercial well to supplement a poorly producing irrigation well or as an alternate point of diversion for an irrigation well.

Both of these problems are addressed by assuring that the intent and/or effect is to dispose of effluent, and not to

obtain the benefit of crop irrigation through a small capacity well.

/s/ Hal D. Simpson
Hal D. Simpson
State Engineer

APPENDIX H6

STATE OF COLORADO
GROUND WATER COMMISSION

Hal D. Simpson
Executive Director
1313 Sherman Street
Denver, Colorado 80203

RULES AND REGULATIONS FOR THE MANAGEMENT AND CONTROL OF DESIGNATED GROUND WATER

2 CCR 410-1

Effective Date: May 1, 1992
Amended: March 30, 1995
Re-amended: April 1, 1997
Re-amended: February 1, 2001

RULES AND REGULATIONS FOR THE MANAGEMENT AND CONTROL OF DESIGNATED GROUND WATER

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RULES AND REGULATIONS FOR THE MANAGEMENT AND CONTROL OF DESIGNATED GROUND WATER

RULE 1 TITLE

1.1 The title of these rules and regulations is "Rules and Regulations for the Management and Control of Designated Ground Water." The short title is "Designated Basin

Rules," and may be referred to herein collectively as the "Rules" or individually as a "Rule."

RULE 2 AUTHORITY

2.1 These Rules are promulgated pursuant to the authority of the Colorado Ground Water Commission in the "Colorado Ground Water Management Act," Title 37, Article 90, Colorado Revised Statutes, primarily Sections 37-90-107, 108, 109 and 111, C.R.S.

RULE 3 SCOPE AND PURPOSE

3.1 The rules establish the management criteria or allowable rate of depletion for ground water in each designated ground water basin. Such management criteria will be used as the basis for the review of applications to use ground water pursuant to Section 37-90-107, C.R.S. The management criteria establish the basis to determine whether a proposed permit would result in unreasonable impairment to existing water rights.

3.2 The rules for replacement wells will expedite the processing of replacement applications and establish limits to differentiate between a replacement well pursuant to Section 37-90-111(1)(c), C.R.S. and a change of water right pursuant to Section 37-90-111(1)(g), C.R.S.

3.3 The rules establish equitable standards for the review of applications to change a right to use designated ground water pursuant to Section 37-90-111(1)(g), C.R.S. These standards also set limitations necessary to prevent material injury.

3.4 The rules establish reasonable guidelines for water measuring devices to be required as a condition of a permit or change application approval.

3.5 The rules seek to improve communication and coordination between the Ground Water Commission and the Designated Ground Water Management Districts.

3.6 The rules are intended to standardize policies and procedures of the Ground Water Commission, to make information as widely available as possible, and to ensure uniform and consistent action by the Commission.

3.7 The rules are not intended to change any terms or conditions of any permits already issued or of any approvals already granted. However, the State Engineer or the Commission, in the exercise of their statutory authority, may impose certain additional terms or conditions on such previously issued permits or approvals.

RULE 4 DEFINITIONS

4.1 The following terms are defined in Section 37-90-103, C.R.S., and these terms shall have identical meaning where used in these Rules:

> Alternate Point of Diversion Well, Aquifer, Artesian Well, Board or Board of Directors, Designated Ground Water, Designated Ground Water Basin, Ground Water Commission or Commission, Ground Water Management District or District, Historical Water Level, Person, Replacement Well, Subdivision, Supplemental Well, Underground Water and Ground Water, Waste, and Well.

4.2 Specific Definitions – Unless expressly stated otherwise the following terms when used in these Rules shall have the meaning indicated in this Rule.

4.2.1 "Additional Well" Means a well permitted under Rule 5.3.9 wherein an additional well, together with the previously permitted well(s) withdrawing ground

water under provisions of Rule 5.3 or 5.4 may withdraw the allowed average annual amount of withdrawal of the previously permitted well(s).

4.2.2 "Allowed Maximum Annual Amount of Withdrawal" means the maximum amount of water in acre-feet that a permittee may withdraw from a well in a calendar year.

4.2.2.5 "Allowed Average Annual Amount of Withdrawal" means the average amount of water in acre-feet that a permittee may withdraw from a well in a calendar year.

4.2.3 "Applicant" means that person or entity who applies to the Ground Water Commission for a well permit or for a change in water right or for any other permitting action from the Commission pursuant to these Rules.

4.2.4 "Appropriation" means the application of a specified portion of the designated waters of the state to a beneficial use pursuant to the procedures prescribed by law.

4.2.5 "Artificial Recharge" means the intentional introduction of water into any underground formation.

4.2.6 "Bedrock Aquifers" means Denver Basin bedrock aquifers as identified in Rule 5.3.1 and those other aquifers within the Designated Basins considered for appropriation under Rule 5.4.

4.2.7 "Beneficial Use' is the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made and, without limiting the generality of the foregoing, includes

the impoundment of water for recreational purposes, including fishery or wildlife.

4.2.8 "Change of Water Right" means a change in acreage served, volume of appropriation, pumping rate, well location, place, time or type of use by any water right, either conditional or final, or any combination of these changes including commingling of waters under such water rights.

4.2.9 "Commission Staff or Staff" means an employee or agent of the Colorado Division of Water Resources authorized by the State Engineer to act or assist in discharging the duties of the Commission.

4.2.10 "Conditional Water Right" means a right to perfect a water right under the provisions of the law with a certain priority upon the completion of the appropriation upon which such water right is to be based.

4.2.11 "Confining Layer" means all or part of a formation which impedes the flow of ground water from an adjacent aquifer.

4.2.12 "Confined Well" means a well completed in or producing from an aquifer or portion of an aquifer in which the static water level in the well rises due to hydrostatic pressure above where it was first encountered in the aquifer.

4.2.13 "Contiguous Parcel" means that portion of the overlying land that is in contact with itself so that no part is totally separated.

4.2.14 "Crop Consumptive Use" means the total amount of water taken up by vegetation for transpiration or building of plant tissue, plus the evaporation from the

adjacent soil or from intercepted precipitation on the plant foliage.

4.2.15 "Cylinder of Appropriation" means a hypothetical cylinder centered around the location of an existing or proposed well which, for a specific aquifer, contains a volume of water equal to one hundred times the annual appropriation of an existing well or the allowed average annual amount of withdrawal of a proposed well. The radius of the cylinder of appropriation is computed from the following formula:

Radius of Cylinder (ft.) = the square root of:

$$\frac{43{,}560 \text{ (ft. sq./acres)} \times \text{withdrawal (acre ft./yr.)} \times 100 \text{ (yr.)}}{\text{Specific yield} \times \text{saturated aquifer materials (ft.)} \times 3.1416}$$

where withdrawal means the annual appropriation or allowed average annual amount of withdrawal.

4.2.16 "Denver Basin Bedrock Aquifers" or "Denver Basin Aquifers" means the Upper Dawson, Lower Dawson, Denver, Upper Arapahoe, Lower Arapahoe and Laramie-Fox Hills aquifers as defined in the Denver Basin Rules, 2 CCR 402-6.

4.2.17 "Historic Withdrawal" means the average annual volumetric amount of ground water withdrawn by a well including any replacement well(s) during the life of the well permit. This amount shall be computed under the provisions of Rule 7.10 unless it is a bedrock aquifer well, where the provisions of Rule 7.1.3 shall apply. These terms differ from the term "the historic depletion of the aquifer" in the sense that the amount of historic depletion of the aquifer is equal to the amount of historic withdrawal from the aquifer minus the portion of the withdrawal which percolates back to the aquifer.

4.2.18 "Large Capacity Well" means any well which is permitted to put designated ground water to beneficial use provided the said permit is not for a small capacity well pursuant to Section 37-90-105, C.R.S.

4.2.19 "Nontributary Ground Water" means that ground water, the withdrawal of which will not, within one hundred years, deplete the flow of a natural stream, or its alluvial aquifer, at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal. The determination of whether ground water is nontributary shall be based on aquifer conditions existing at the time of permit application; except that, in recognition of the de minimis amount of water discharging from the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers into surface streams due to artesian pressure, in determining whether ground water of the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers is nontributary, it shall be assumed that the hydrostatic pressure level in each such aquifer has been lowered at least to the top of that aquifer throughout that aquifer.

4.2.20 "Overappropriated Aquifer" means an aquifer for which the net average annual depletion rate of ground water is considered to be in excess of the allowable net average annual depletion rate for that aquifer as set by the Commission.

4.2.21 "Overlying Land" means that land owned by the applicant, or by another who has consented to the applicant's withdrawal of ground water, which overlies the bedrock aquifers as described in Rule 5.3 and 5.4 of these Rules, and which the applicant requests be considered in determining the allowed average annual amount of withdrawal sought in the application.

4.2.22 "Priority" means the date that a water right or a conditional water right will be entitled to use water in relation to other water rights and conditional water rights deriving their supply from a common source.

4.2.23 "Replacement Plan" means a detailed program to increase the supply of water available for beneficial use in a designated basin or portion thereof by the development of new or alternate means or points of diversion, by a pooling of water resources, by water exchange projects, by providing substitute supplies of water, by the development of new sources of water, or by any other appropriate means. "Replacement Plan" does not include the salvage of designated waters by the eradication of phreatophytes, nor does it include the use of precipitation water collected from land surfaces which have been made impermeable, thereby increasing the runoff but not adding to the existing supply of water.

4.2.24 "Saturated Aquifer Material(s)" means those aquifer materials containing sufficient water that can be drained by gravity and placed to beneficial use.

4.2.25 "Specific Yield" means the volume of water which can be drained by gravity from a saturated volume of aquifer material divided by the volume of material. This ratio can be expressed as a percentage.

4.2.26 "Three-Mile Circle" or "Circle" means a circle with a radius of three miles centered at the location of the well or proposed well used to appropriate water from the Ogallala Aquifer of the Northern High Plains Designated Ground Water Basin.

4.2.27 "Waiver of Claim of Injury" means a written affidavit given by a well owner to an applicant waiving all

claims of any injury to an existing water right as a result of the approval of applicant's request by the Commission.

4.2.28 "Water Right" means a right to use in accordance with its priority a certain portion of the designated ground water by reasons of the appropriation of the same.

4.2.29 "Well Field" means two or more wells, which are permitted to withdraw ground water from the same aquifer in any combination thereof up to the full permitted amount of the aggregate appropriations.

4.2.30 "Well Owner" means any person or his agent who holds the title or other rights of property in a well.

4.2.31 "Wire to Water Efficiency" or "Overall Pumping Plant Efficiency" means the ratio of the water energy output from the pump divided by the input energy to the power plant expressed as a percentage.

4.3 Other Definitions – All other words used herein shall be given their usual customary and accepted meaning. Terms that were not defined in this Rule which are defined in the statutes or other rules of the State Engineer shall use the meaning given therein. All words of a technical nature specific to the water well industry shall be given the meaning which is generally accepted in said industry.

RULE 5 APPROPRIATION OF DESIGNATED GROUND WATER

5.1 Applicability

5.1.1 Section 37-90-107, C.R.S. provides for the Commission's review and approval of applications to use designated ground water. The availability of water for appropriation, prevention of unreasonable impairment to

the rights of other appropriators, and prevention of unreasonable waste are criteria the Commission is to consider in determining whether to grant or deny an application.

5.1.2 The use of ground water requiring a permit pursuant to Section 37-90-107, C.R.S. may include use for irrigation, municipal, commercial, industrial, mining, fishery, recreational and all other beneficial uses as occur through the use of a well. The use of ground water may also include the incidental use through evaporation from mining excavations or recreational ponds.

5.1.3 The spacing limits, calculations of appropriation and other limits set forth herein apply to large capacity wells. Certain applications to be considered pursuant to prior court decree may not be subject to this rule but when a conditional decree previously granted by a court becomes absolute by reason of a well being drilled and water put to beneficial use, the well becomes fully subject to the Colorado Ground Water Management Act, Title 37, Article 90 and the Commission's rules and policies. For all applications to construct wells or use ground water within the boundaries of a designated basin, the Commission shall first determine if it has jurisdiction.

5.1.4 If an application to appropriate designated ground water can be given favorable consideration, such fact shall be published in accordance with Sections 37-90-107(2), and 112 C.R.S.

5.1.5 Applications for well permits pursuant to Section 37-90-105, C.R.S. may be granted by the State Engineer without regard to any provisions of these rules.

5.2 Appropriation from all Aquifers except Bedrock Aquifers – This rule applies to all aquifers except bedrock

aquifers. Aquifer boundaries defined here are deemed presumptive upon the Commission and applicants, except that site specific data may be used to better define an aquifer boundary.

5.2.1 No application for a permit to appropriate ground water from an aquifer under Rule 5.2 shall be granted within 1/2 mile of an existing large capacity well unless a Waiver of Claim of Injury is obtained from the owner of such a well or unless the Commission, after a hearing, finds that circumstances in a particular instance allow a permit to be issued without regard to the above limitation.

5.2.2 Northern High Plains Designated Ground Water Basin – Ogallala and White River Aquifers.

5.2.2.1 The areal extent of the Ogallala and White River Aquifers are considered to coincide with the areal extent of the Northern High Plains Designated Basin.

5.2.2.2 All new appropriations shall be controlled by management criteria that limit the maximum allowable rate of depletion to 40% of the water in storage within the saturated materials over a 100 year period. The amount of water in storage shall be determined as of the date of acceptance of a complete application.

5.2.2.3 In the evaluation of new permit applications, the following three-mile radius circle formula shall be used in the determination of whether an application shall be granted or denied:

$$A = \frac{640(D)(S.Y.)\ 3.1416\ R^2\ H}{(1.0 - Ir)t} + \frac{640(f)(Pr)\ 3.1416\ R^2}{12(1.0\ \ Ir)}$$

where,

A	=	Annual appropriation allowable within the circle being evaluated in acre-feet per year
D	=	Allowable depletion (expressed as a decimal)
S.Y.	=	Specific yield (dimensionless)
R	=	Radius of circle (miles)
H	=	Average saturated thickness within the circle (feet)
t	=	Time period during which depletion, D, occurs (years)
Pr	=	Precipitation recharge (inches/yr.)
f	=	Fraction of Pr that is available for appropriation in the circle (dimensionless)
Ir	=	Fraction of A that returns to the aquifer as deep percolation, i.e., irrigation return (dimensionless)

The constants in the above equation are:

D = 0.4, S.Y. = 0.15, R = 3 miles, t = 100 years, f = 0.2 and Ir = 0.15

Use of these constants in the formula above gives:

$$A = 12.77H + 354.82Pr$$

Saturated thickness, H, shall be determined by an evaluation of contour maps developed from well completion reports of existing wells as well as other pertinent available water level data. Precipitation recharge, Pr, will be determined from Figure 18 of the report "Distribution of Ground Water Recharge," AER66-67 DLR9, Colorado State University, June 1967 by Donald L. Reddell.

5.2.2.4 When the three-mile circle includes the White River Formation, located in the area as shown on figure 1, the value for Specific Yield (S.Y.) in the above formula will be 0.25. The thickness of saturated materials,

H, will be the average net sands thickness in the three-mile circle. The annual available appropriation from within the three-mile circle can then be computed as:

$$A = 21.29H + 354.82Pr$$

5.2.2.5 Appropriations within the three-mile circle shall be included as a chargeable appropriation against the application for the stated annual appropriation on a final permit or for the amount evidenced to have been put to beneficial use under a valid conditional permit. The appropriation amounts on all new conditional permits and prior applications not yet permitted shall also be included as chargeable amounts against the application.

5.2.2.6 When an application is received within 3 miles of the state line or the boundary of the Northern High Plains Designated Basin, the volume of water in storage, the amount of precipitation recharge and the existing appropriations shall be calculated in such a way as to only include those amounts within the basin and within Colorado.

5.2.2.7 When an application is received within 3 miles of the administrative line shown in Figure 1, the amount of water in storage shall be determined by adding the amounts of water in storage under the parts of the three-mile circle in the net sand area (Rule 5.2.2.4) and the regular sand area (Rule 5.2.2.3).

5.2.2.8 No new application for a well in the Ogallala Aquifer, absent a replacement plan in accordance with Rule 5.6, shall be granted in an area within three miles of a point of live flow on the North Fork of the Republican River, Chief Creek, or their tributaries. This area is shown in Figure 2.

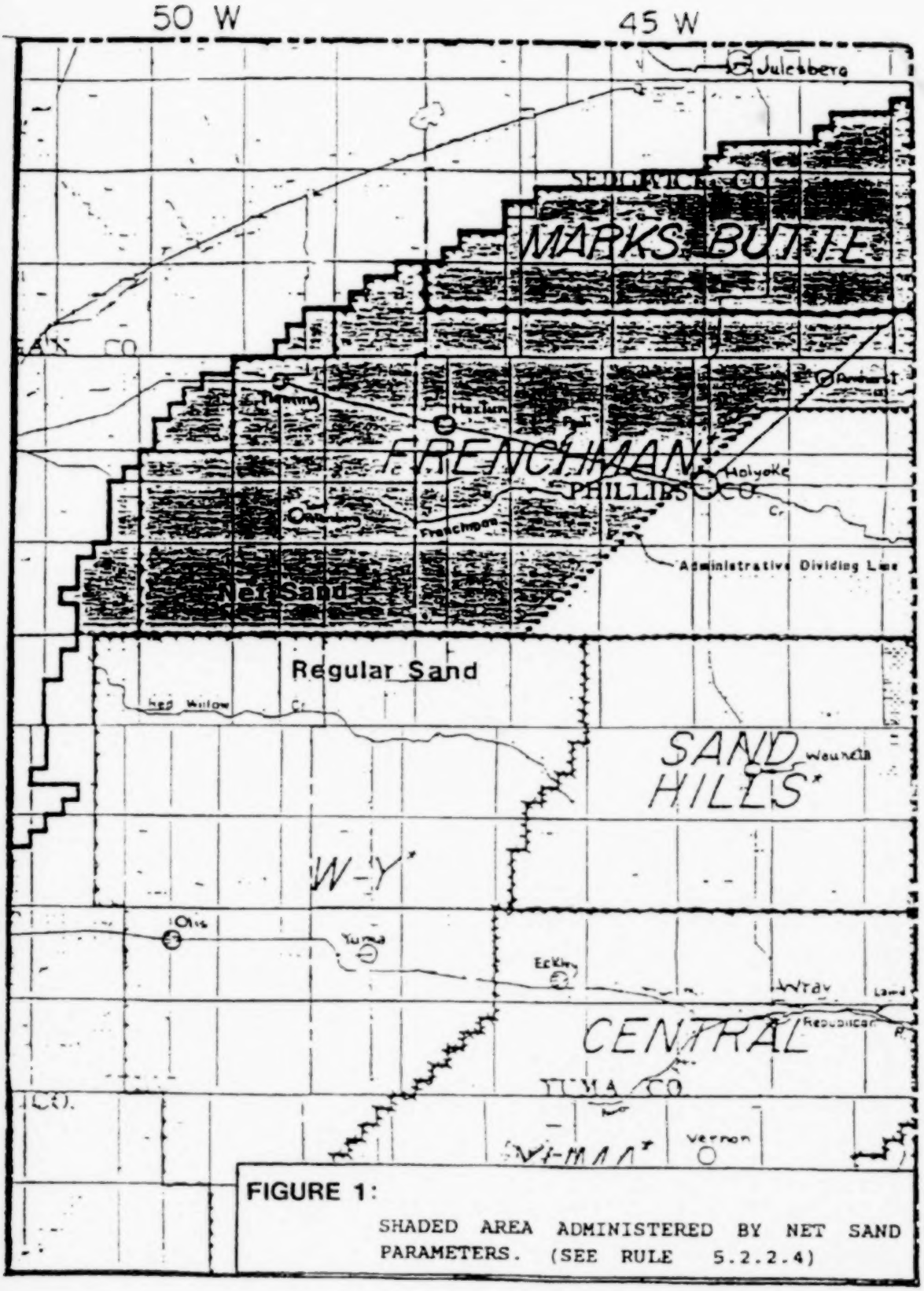

FIGURE 1:

SHADED AREA ADMINISTERED BY NET SAND PARAMETERS. (SEE RULE 5.2.2.4)

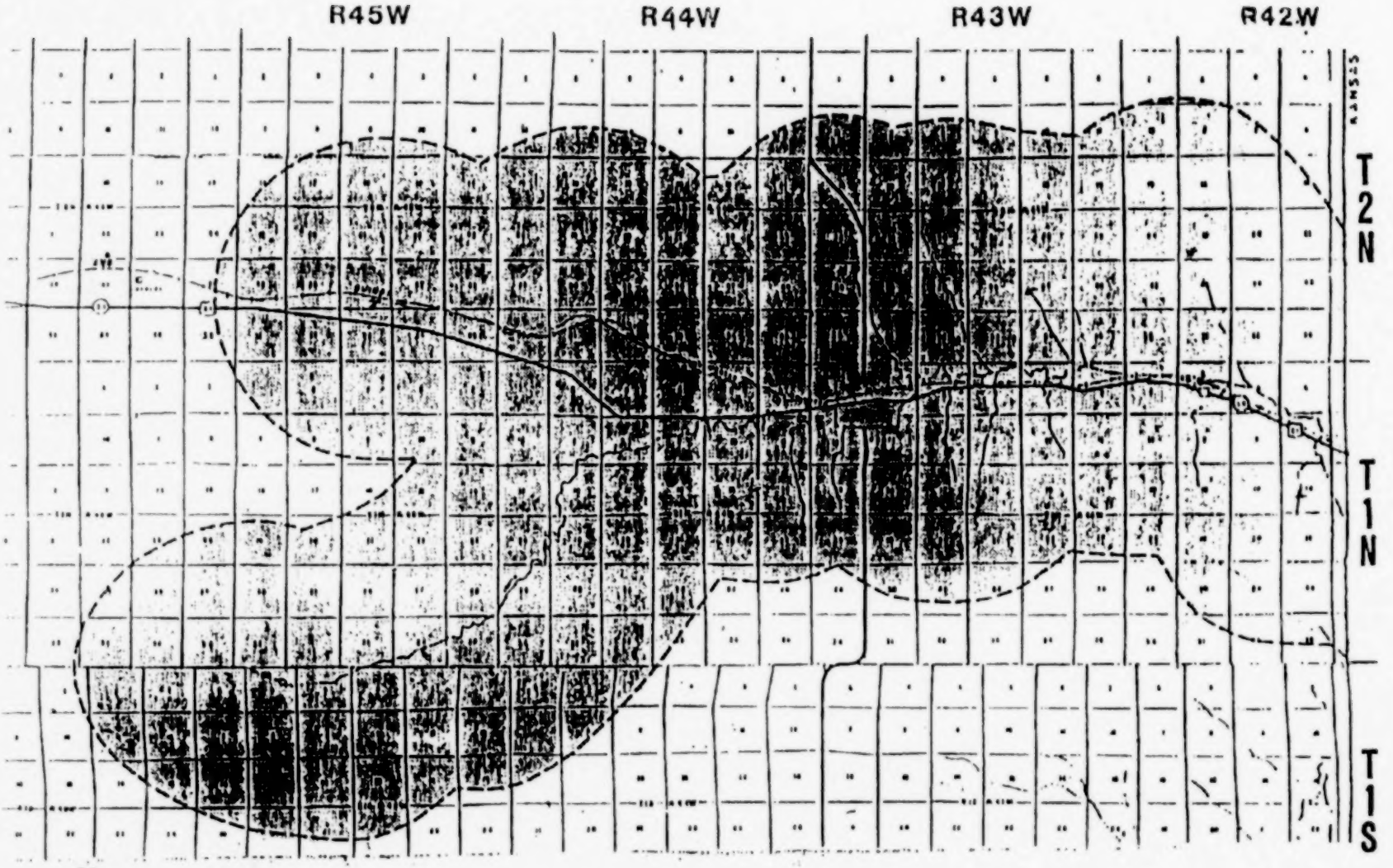

FIGURE 2:

AREAS WITHIN THREE MILES OF POINTS OF LIVE FLOW ON THE NORTH FORK OF THE REPUBLICAN RIVER, CHIEF CREEK AND THEIR TRIBUTARIES. (SEE RULE 5.2 2.8)

5.2.2.9 The following sections in Kiowa and Prowers Counties are deemed overappropriated for the Ogallala Aquifer and no new appropriations will be approved absent a replacement plan in accordance with Rule 5.6:

Township 21 South, Range 41 West:
Sections 5 through 8, 18;

Township 21 South, Range 42 West:
Sections 1 through 20

Township 21 South, Range 43 West:
Sections 1, 2, 11 through 13;

Township 20 South, Range 42 West:
Sections 7, 8, 17 through 21,
and Sections 28 through 36

Township 20 South, Range 43 West:
Sections 1, 2, 10 through 36;

Township 20 South, Range 44 West:
Sections 13, 24, 25, 36.

5.2.3 Southern High Plains Designated Ground Water Basin – Alluvium, Cheyenne, Dakota, Dokum and Ogallala Aquifers

5.2.3.1 The areal extent of the Cheyenne, Dakota, and Ogallala aquifers are shown in Figures 3, 4, and 5 respectively of the report entitled "Ground Water Resources Study – Relating to Portions of Prowers, Baca and Las Animas Counties, Colorado" prepared for the Colorado Ground Water Commission by R. W. Beck and Associates, Denver, Colorado, 1967. The areal extent of Alluvium and Dokum aquifers shall be determined by site specific information and any applicable literature.

5.2.3.2 A new large capacity well permit can be granted by the Commission to appropriate water from any of the aquifers identified above in Rule 5.2.3.1 if this appropriation does not unreasonably impair any existing water rights.

5.2.4 Kiowa-Bijou Designated Ground Water Basin – Alluvial Aquifer

5.2.4.1 The Alluvial Aquifer shall be defined as identified in Plate 2 of the report "Evaluation of Water Resources in Kiowa and Bijou Creek Basins, Colorado" prepared for the Colorado Water Conservation Board by Colorado State University, Fort Collins, Colorado, 1966.

5.2.4.2 The Alluvial Aquifer within the Kiowa-Bijou Designated Ground Water Basin is determined to be overappropriated and, therefore, no new large capacity well permits shall be granted in the Alluvial Aquifer unless a replacement plan is approved by the Commission in accordance with Rule 5.6.

5.2.5 Lost Creek Designated Ground Water Basin – Alluvial Aquifer

5.2.5.1 The Alluvial Aquifer shall be defined as the area identified in Plate 3 of the report entitled "Ground Water Resources of the Lost Creek Drainage Basin – Weld, Adams and Arapahoe counties, Colorado," prepared for the Colorado Ground Water Commission by Nelson, Haley, Patterson and Quirk, Inc., Greeley, Colorado, 1967.

5.2.5.2 The Alluvial Aquifer within the Lost Creek Designated Ground Water Basin area south of the line between Township 2 North and Township 3 North is determined to be overappropriated and, therefore, no new

large capacity well permits shall be granted in this area unless a replacement plan is approved by the Commission in accordance with Rule 5.6. A new large capacity well permit can be granted to appropriate water from the Alluvial Aquifer within the Lost Creek Designated Ground Water Basin area north of the line between Township 2 North and Township 3 North if this appropriation does not unreasonably impair any existing water rights.

5.2.6 Upper Black Squirrel Creek Designated Ground Water Basin – Alluvial Aquifer

5.2.6.1 The Alluvial Aquifer shall be defined as the area identified in Plate 3 of a report entitled "Ground Water Resources of the Upper Black Squirrel Creek Basin, El Paso County, Colorado," prepared by the Colorado Division of Water Resources, Denver, Colorado, 1967.

5.2.6.2 The Alluvial Aquifer within the Upper Black Squirrel Creek Designated Basin is determined to be overappropriated and, therefore, no new large capacity well permits shall be granted in the Alluvial Aquifer unless a replacement plan is approved by the Commission in accordance with Rule 5.6.

5.2.7 Upper Big Sandy Designated Ground Water Basin – Alluvial Aquifer

5.2.7.1 The Alluvial Aquifer shall be defined as the area identified in Plate 1 of the report entitled, "Geology and Ground Water Resources of Parts of Lincoln, Elbert, and El Paso Counties, Colorado," by the Colorado Water Conservation Board and the U.S. Geological Survey, Denver, Colorado, 1946.

5.2.7.2 A new large capacity well permit can be granted by the Commission to appropriate water from the

Alluvial Aquifer identified above in Rule 5.2.7.1 if this appropriation does not unreasonably impair any existing water rights.

5.2.8 Camp Creek Designated Ground Water Basin – All Aquifers

5.2.8.1 Camp Creek Designated Ground Water Basin consists of Alluvial, Dune Sand, Chadron and Ogallala aquifers. The aquifer boundaries within the basin are identified in Plates 2, 3 and 5 of the report entitled, "Ground Water Resources of Northwest Washington County, Colorado" prepared for Town of Akron by Nelson, Haley, Patterson, and Quirk, Inc., Greeley, Colorado, 1967.

5.2.8.2 A new large capacity well permit can be granted by the Commission to appropriate water from any of the aquifers identified above in Rule 5.2.8.1 if this appropriation does not unreasonably impair any existing water rights.

5.2.9 Upper Crow Creek Designated Ground Water Basin – Alluvial, Fan and White River Aquifers

5.2.9.1 The extent of each aquifer shall be defined as the area identified in Plate 1 of the report entitled, "Water Resources of Upper Crow Creek, Colorado" prepared for the Colorado Geological Survey by Robert Kirkham and John Rold, Denver, Colorado 1986. All but the southern tip of the study area is underlain by the White River Aquifer. The southern tip area is underlain by the Laramie formation.

5.2.9.2 The Fan Aquifer east of Crow Creek and the White River Aquifer underlying this part of the Fan Aquifer is determined to be overappropriated and, therefore, no new large capacity well permits shall be granted

in these aquifers unless a replacement plan is approved by the Commission in accordance with Rule 5.6. A well permit can be approved in the Alluvial Aquifer and in the Fan and White River Aquifer not mentioned above if this appropriation does not unreasonably impair any existing water rights.

5.3 Appropriation from Denver Basin Bedrock Aquifers

5.3.1 Denver Basin Aquifer Definitions

5.3.1.1 The Denver Basin Aquifers are Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers within the Kiowa-Bijou, Lost Creek, Upper Big Sandy, and Upper Black Squirrel Creek Designated Ground Water Basins. The extent of each aquifer is defined in Rule 4(A) of the Denver Basin Rules, 2 CCR 402-6.

5.3.1.2 These aquifer definitions are deemed presumptive upon the Commission and applicants except that the Commission, after reviewing any site specific data, may revise an aquifer boundary.

5.3.2 Allowable Rate of Withdrawal

5.3.2.1 The allowable rate of withdrawal for these aquifers shall be limited so as to allow at least a 100 year aquifer life. Waters which have not been separated from land owned by the applicant or waters to which applicant has separate title under a described land area shall be available for appropriation. The availability of such waters is limited by the provisions of these rules to prevent unreasonable impairment to existing water rights.

5.3.2.2 Applicant shall demonstrate prima facie land ownership or consent of an overlying landowner as evidenced by a completed consent statement provided by

the Office of the State Engineer. Any waters identified as a water supply to be developed through individual wells in an approved subdivision water supply plan shall be deemed as being under the control of the individual lot owners absent a legal conveyance to the contrary or absent a resolution adopted pursuant to Rule 5.3.10.

5.3.2.3 The allowed average annual amount of withdrawal of water from any of these aquifers is determined by the formula:

$$\text{Average Annual Withdrawal (acre-feet)} = \frac{\text{land area (acres)} \times \text{saturated aquifer materials (ft.)} \times \text{S.Y.}}{100 \text{ years}}$$

where S.Y. is the specific yield of the aquifer (dimensionless). See Rule 5.3.4 for the thickness of saturated aquifer materials and Rule 5.7 for Specific Yield values.

5.3.2.4 In computing the land area to be used under Rule 5.3.2.3, the area of the cylinder of appropriation for a well(s) which has or can be issued a small-capacity well permit pursuant to Section 37-90-105, C.R.S., shall be considered to be zero. The average annual withdrawal computed under Rule 5.3.2.3 may be reduced by any applicable appropriation amount for such a small-capacity well(s) located on this land area and withdrawing water from the aquifer under consideration.

5.3.2.5 The allowed maximum annual amount of withdrawal may exceed the allowed average annual amount of withdrawal as long as the total volume of water withdrawn from the well or wells does not exceed the product of the number of years since the date or dates of issuance of the well permit or permits times the allowed average annual amount of withdrawal. This provision is

applicable only for Denver Basin aquifer wells but is not applicable to a well whose water right was created prior to November 19, 1973 in accordance with the provisions of Rule 5.3.3. Existing permitted well owners may avail themselves to this provision upon written approval of the Commission.

5.3.3 Determination of the extent of appropriations created prior to November 19, 1973

5.3.3.1 If the cylinder of appropriation of a well for which a right was created prior to November 19, 1973 as evidenced by a well registration or by a well permit and its beneficial use statement, overlap(s) the overlying land claimed in the application, the number of acres of overlying land to be used in determining the available water in storage shall be reduced by the number of acres of the cylinder of appropriation which overlaps the land. An applicant whose water rights are reduced by such cylinder(s) may, upon notice to all affected parties, challenge the Commission's determination of the size of such overlap by requesting an evidentiary hearing before the Commission.

5.3.3.2 In the event that a well completed prior to November 19, 1973 does not fully penetrate the aquifer, the radius of the cylinder of appropriation for that well shall be calculated assuming that it does fully penetrate that aquifer.

5.3.3.3 In the event that a well initiated prior to November 19, 1973 is constructed so as to produce water from more than one aquifer, cylinders of appropriation shall be calculated for each aquifer. The production of the well from each aquifer shall be allocated in proportion to the historical production of the well from each aquifer. The

interval of each aquifer through which the well is completed shall be considered in the determination of the historical production from each aquifer. Where this perforation interval cannot be determined, the well shall be assumed to be producing from the entire interval of the aquifers involved.

5.3.4 Determination of thickness of Saturated Aquifer Materials in the Denver Basin Aquifers

5.3.4.1 The thicknesses of sandstones and siltstones in the Denver Basin Aquifers are shown on the following figures prepared by the Colorado Division of Water Resources:

a.	Upper Dawson	Denver Basin Atlas No. 1, Plate 3, Figure 1E
b.	Lower Dawson	Denver Basin Atlas No. 1, Plate 2, Figure 1C
c.	Denver	Denver Basin Atlas No. 2, Plate 2, Figure 2C
d.	Upper Arapahoe	Denver Basin Atlas No. 3, Plate 4, Figure 3E minus Plate 5, Figure 3F*
e.	Lower Arapahoe	Denver Basin Atlas No. 3, Plate 5, Figure 3F
f.	Laramie-Fox Hills	Denver Basin Atlas No. 4, Plate 3, Figure 4C

* To find the thickness of the Upper Arapahoe Aquifer subtract the thickness value shown in Plate 5, Figure 3F from the thickness value shown in Plate 4, Figure 3E. Where there is no overlap between figures, Figure 3F value is zero.

5.3.4.2 The thicknesses on the above figures, subject to any revisions thereof by the Commission based upon any site specific data, shall be considered to be the thickness of saturated aquifer material as long as the aquifer is confined, i.e., under artesian pressure. The applicant may be required by the Commission to demonstrate that the aquifer is still confined or, if the aquifer is unconfined, to provide data on the site specific location of the water table. Upon evaluating the location of the water table, the Commission shall determine the thickness of saturated aquifer materials.

5.3.5 Standards for requirements of geophysical logs and test holes in the Denver Basin aquifers shall be the same as set forth in Rules 9 and 10 of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7.

5.3.6 Replacement Water Requirements for the Denver Basin aquifers: The Commission recognizes that the pumping of waters from the Dawson, Denver, Arapahoe and Laramie-Fox Hills aquifers may cause depletions in the overlying alluvial aquifers which may affect vested water rights. Necessary terms and conditions shall be imposed on any new well permit to insure no unreasonable impairment to the rights of other appropriators.

5.3.6.1 The locations of Nontributary Ground Water for the Denver Basin aquifers are shown in the figures referenced below. The Commission may accept site specific information if it finds that information is more precise.

A. The location of nontributary ground water in the Upper Dawson Aquifer is shown in Denver Basin Atlas No. 1, Plate 4, Figure 1G as revised March 21, 1991.

B. The location of nontributary ground water in the Lower Dawson Aquifer is shown in Denver Basin Atlas No. 1, Plate 4, Figure 1F as revised March 21, 1991.

C. The location of nontributary ground water in the Denver Aquifer is shown in Denver Basin Atlas No. 2, Plate 2, Figure 2D as revised March 21, 1991.

D. The location of nontributary ground water in the Upper Arapahoe Aquifer is shown in Denver Basin Atlas No. 3, Plate 6, Figure 3H as revised March 21, 1991.

E. The location of nontributary ground water in the Lower Arapahoe Aquifer is shown in Denver Basin Atlas No. 3, Plate 5, Figure 3G as revised March 21, 1991.

F. The location of nontributary ground water in the Laramie-Fox Hills Aquifer is shown in Denver Basin Atlas No. 4, Plate 4, Figure 4D as revised March 21, 1991.

5.3.6.2 Replacement Water Required:

A. For wells proposing to withdraw water from the Dawson, Denver, Arapahoe and Laramie-Fox Hills aquifers within the nontributary zone, the terms and conditions shall provide that no more than 98% of the water withdrawn annually is consumed.

B. For wells proposing to withdraw not-nontributary ground water from the Denver, Arapahoe, or Laramie-Fox Hills aquifers at a point farther than 1 mile from the contact with the alluvium, the terms and conditions shall provide for the replacement of 4 percent of the water diverted from such well. The return of replacement water to the

uppermost aquifer in the vicinity of the point of withdrawal shall be presumed to be in compliance with Rule 5.6.1.(C) but replacement at other locations may be approved by the Commission.

C. For wells proposing to withdraw not-nontributary ground water from a Dawson Aquifer or not-nontributary ground water from the Denver, Arapahoe, or Laramie-Fox Hills aquifers at a point closer than one mile from the contact with the alluvium, the amount of such replacement water shall provide for the depletion of alluvial water for the first 100 years due to all previous pumping and if pumping continues beyond 100 years, shall replace actual impact until pumping ceases, assuming water table conditions in the bedrock aquifer. The applicant shall be required to develop terms and conditions necessary to prevent injury to prior designated ground water rights. Such terms and conditions shall meet the standards for a Replacement Plan as defined in Rule 5.6.

5.3.6.3 For wells which will appropriate water from more than one zone of an aquifer as identified in Items A, B, and C of Rule 5.3.6.2, the replacement requirements to meet the intent of replacement needs of Rule 5.3.6.2 shall be determined based upon the overlying land acreage located in each zone and the location of the well.

5.3.6.4 The measurement of annual withdrawals and the keeping of records is the responsibility of the well owner. The annual diversion from the period January 1 to December 31 of each year shall be the basis for computation of the replacement requirement.

5.3.6.5 The replacement water may occur as a return flow from the owner's use of the well pursuant to a plan which provides an accounting for the use of the well and the source of each point of return flow. The well owner shall be responsible for any required measurements of the return flow. Credit for diffuse return flow shall be given only to the extent that the well owner has maintained control over such waters and can quantify such returns by reasonable engineering methods acceptable to the Commission. A plan proposing return flow as a source of replacement water must be incorporated as a term and condition of the permit.

5.3.6.6 The well owner shall be required to provide such self-administration as necessary to assure compliance with permit terms and conditions. Self-administration may include metering, reporting or the retention of a neutral third party as reporting agent.

5.3.7 Well Location: All wells, including additional wells, withdrawing water from the Denver Basin aquifers, must be located on the overlying land.

5.3.7.1 A permit shall not be issued for a large-capacity well under Rule 5.3 if this well is to be located within 600 feet of an existing large-capacity well in the same aquifer unless a Waiver of Claim of Injury is obtained from the owner of the existing well or unless the Commission, after a hearing, finds that circumstances in a particular instance warrant that a permit can be issued without regard to the above limitation.

5.3.7.2 If the applicant has identified noncontiguous parcels of overlying land, the applicant may withdraw the total allowed average annual amount of withdrawal from one or more wells, provided that the well

or wells are located so that the cylinder or cylinders of appropriation for at least one of the wells overlap, at least in part, the noncontiguous parcels. In determining the cylinder of appropriation, the acreage from the noncontiguous parcels shall be included in the calculation.

5.3.8 Operation of a well field may be permitted where the entire appropriation for the several wells withdrawing water from the same aquifer may be withdrawn from any combination of wells within the well field. Such a plan may be approved at the time of original permitting or by subsequent request for a change pursuant to Section 37-90-111(1)(g).

5.3.9 Additional wells may be permitted so long as the effect is that the allowed annual amount of withdrawal from all wells involved will not exceed the permitted average annual amount as originally established pursuant to Rule 5.3.2.

5.3.10 It is recognized that economic considerations generally make it impractical for individual landowners to drill wells into the aquifers named in Rule 5.3 for individual water supplies where municipal or quasi-municipal water service is available and that public interest justifies the use of such ground water by municipal or quasi-municipal water suppliers under certain conditions. Therefore, wherever any existing municipal or quasi-municipal water supplier is obligated either by law or by contract in effect prior to January 1, 1985, to be the principal provider of public water service to landowners within a certain municipal or quasi-municipal boundary in existence on January 1, 1985, said water supplier may adopt an ordinance or resolution, after ten days notice pursuant to the provisions of Part 1 of Article 70 of Title

24, C.R.S, which incorporates ground water from the Dawson, Denver, Arapahoe, Laramie-Fox Hills, or Dakota aquifers underlying all or any specified portion of such municipality's or quasi-municipality's boundary into its actual municipal service plan. Upon adoption of such ordinance or resolution, a detailed map of the land area as to which consent is deemed to have been given shall be filed with the Commission. Upon the effective date of such ordinance or resolution, the owners of land which overlies such ground water shall be deemed to have consented to the withdrawal by that water supplier of all such ground water, except that no such consent shall be deemed to be given with respect to any portion of the land if:

A. Water service to such portion of the land is not reasonably available from said water supplier and no plan has been established by that supplier allowing the landowner to obtain an alternative water supply;

B. Such ordinance or resolution was adopted prior to the effective date of these Rules, and, prior to January 1, 1985, such ground water was conveyed or reserved or consent to use such ground water was given or reserved in writing to anyone other than such water supplier and such conveyance, reservation, or consent has been properly recorded prior to the effective date of these rules;

C. Such ordinance or resolution is adopted on or after the effective date of these Rules, and said ground water has been conveyed or reserved or consent to use such ground water has been given or reserved in writing to anyone other than such water supplier and such conveyance, reservation, or consent is properly recorded before the effective date of that ordinance or resolution;

D. Consent to use such ground water has been given to anyone other than such water supplier by the lawful effect of an ordinance or resolution adopted prior to January 1, 1985;

E. Such ground water has been decreed or permitted to anyone other than such water supplier prior to the effective date of such ordinance or resolution; or

F. Such portion of the land is not being served by said water supplier as of the effective date of such ordinance or resolution and such ground water is the subject of an application for determination of a right to use ground water filed with the Commission prior to the effective date of these Rules.

5.4 Appropriation from all Bedrock Aquifers Except the Denver Basin Bedrock Aquifers

5.4.1 This Rule shall apply to all aquifers in all the designated basins except those aquifers listed below:

A. Lost Creek, Kiowa-Bijou, Upper Big Sandy and Upper Black Squirrel Creek Basins: Alluvium and Denver Basin Bedrock aquifers.

B. Northern High Plains and Camp Creek Basins: Alluvium, Ogallala, and White River.

C. Southern High Plains Basin: Alluvium, Ogallala, Dakota, Cheyenne and Dokum.

D. Upper Crow Creek: Alluvium, Fan, and White River.

5.4.2 An application to appropriate ground water from these aquifers shall be analyzed on the basis of the ownership of the overlying land and on the basis of an aquifer life of one hundred years.

5.4.3 The amount of water available in storage in a specified bedrock aquifer under a specified parcel of land shall be computed based upon the site specific hydrogeologic information available to the Commission.

5.4.4 The provisions of Rule 5.3.7 dealing with the well location for the Denver Basin bedrock aquifer wells shall also apply to all other bedrock aquifer wells.

5.5 Water Quantity Requirements for Issuance of New Permits for Irrigation Use – For new permits, the amount of water to be appropriated for irrigation of agricultural lands shall be 2-1/2 acre-feet per irrigated acre for all aquifers in all designated basins except the Southern High Plains Basin where this amount shall be 3-1/2 acre-feet per acre. In reviewing permit applications, the amount of water available for appropriation must be sufficient to irrigate the requested acreage at the prescribed rate unless an exception is granted by the Commission.

5.6 Replacement Plans

5.6.1 New appropriations of designated ground water from aquifers which are otherwise overappropriated or where such approval may result in unreasonable impairment to existing water rights may be allowed pursuant to a detailed replacement plan. This plan must be adequate to prevent any material injury to water rights of other appropriators. A replacement plan must contain, as a minimum, the following elements:

A. A detailed description of the source of the replacement water. The source must be such that the water it provides is not required for the fulfillment of vested water rights which are not a part of the plan.

B. A detailed description of the proposed diversion, use, and depletion of designated ground water which would result under the plan.

C. Proof that the plan will not cause material injury to water rights of other appropriators.

D. Proof that the plan will not cause unreasonable impairment of water quality.

E. Proof that the plan can and will be operated and administered on an ongoing and reliable basis, which must include at least the following general conditions of approval:

1. Flow measurement devices shall be required on all wells involved in the plan unless the Commission finds that such devices would be unnecessary or impractical.

2. Monitoring to insure that the estimates of consumptive use, return flows, and replacement water are accurate and that depletions are actually replaced.

3. Monitoring of ground water quality to insure that the water quality of the receiving aquifer is not unreasonably impaired.

4. Providing a plan compliance report acceptable to the Commission.

5. Reporting the information required by subparagraphs (1) through (4) above and any other data required by the conditions of approval for the plan to the Commission and District on a schedule determined by the Commission, but on no less than a yearly basis.

6. Recording the terms and conditions of the plan with the county clerk and recorder. Such terms and conditions shall be regarded as covenants running with the land.

F. The Commission retains jurisdiction to modify or revoke approval of the plan, if monitoring or operating experience reveals that the plan results in any material injury to water rights of other appropriators or in unreasonable impairment to water quality.

5.6.2 Upon receipt of any such replacement plan, the staff shall review it to determine whether it is adequate to meet these criteria and the provisions of C.R.S. 37-90-107. The applicant shall have the burden of proving the adequacy of the plan in all respects. If the plan is located within a ground water management district, a copy of the application shall be sent by the staff to the management district and the staff shall consider any comments or recommendations from the management district. The staff shall propose any additional terms and conditions or limitations which are necessary to prevent material injury and to ensure that the plan is administrable and enforceable.

5.7 Specific Yield Values – Unless site specific information acceptable to the Commission is available, the specific yield for the various aquifers to be used in the evaluation of applications pursuant to these Rules is determined to be as follows. For all other aquifers, the specific yield will be determined from the best available information to the Commission.

Aquifer	Specific Yield
Dawson (Upper and Lower)	20%
Denver	17%
Arapahoe (Upper and Lower)	17%
Laramie-Fox Hills	15%
Lost Creek Alluvium	17%
Kiowa Bijou Alluvium	17%
Upper Black Squirrel Alluvium	20%
Upper Big Sandy Alluvium	20%
Upper Crow Creek – Fan Aquifer east of Crow Creek	20%
Upper Crow Creek Alluvium	20%
Northern High Plains – Ogallala Aquifer	15%
Northern High Plains – Ogallala and White River formations north of the Administrative Line (on Figure 1).	25% for sand layers
Southern High Plains – Ogallala Aquifer	15%

5.8 Artificial Recharge – Subject to permitting requirements, artificial recharge may be captured by the person causing such recharge to the extent that other water rights are not impaired and provided that the waters used for recharge are either imported to the basin, or originate from a different aquifer, or are waters which would not otherwise recharge the same basin at some downstream point. The capture of these waters is subject to permitting requirements pursuant to Section 37-90-107, C.R.S. As such waters move away from applicant's ability to capture, they become designated ground water available to other appropriators within the Basin.

5.9 Well Completion – All wells must be completed in accordance with the Rules and Regulations of the Board of Examiners of Water Well Construction and Pump Installation Contractors for the State of Colorado (2 CCR 402-2).

5.10 Geophysical Logs – Geophysical logging is required for all large-capacity wells from any bedrock aquifers as permitted under Rules 5.3 and 5.4. Such logs shall be made in accordance with Rule 9 of the Statewide Nontributary Ground Water Rules 2 CCR 402-7.

5.11 Deviation from Permitted Location for New Wells – The following distances are the allowable variation from the permitted site in each aquifer or basin. Wells completed farther than the specified distance from the permitted location shall be deemed to be in violation of permit conditions. If a Management District's Rules and Regulations specify a lesser distance for a new or replacement well, the lesser distance shall apply. For bedrock aquifer wells, well to well minimum spacing requirements of Rule 5.3.7.1 shall also apply.

Aquifer	Allowable Variation from the Permitted Well Site
Bedrock Aquifers	200 feet
All other aquifers	300 feet

RULE 6 REPLACEMENT WELL PERMITS

6.1 Applicability – For consideration as a replacement well under Section 37-90-111(1)(c), C.R.S., the limitations in this Rule 6 shall apply. All replacement applications not within the limits of this rule shall be reviewed under Rule 7 as a change of water right.

6.2 A replacement well shall be constructed within the following distance of the originally permitted well site

except where a Management District's Rules and Regulations specify a lesser distance, in which case, the lesser distance shall apply:

Aquifer	Allowable Distance from Originally Permitted Well Site
Bedrock Aquifers	200 feet
All other aquifers	300 feet

6.3 A replacement well in a bedrock aquifer subjected to the 200 feet distance limitation of Rule 6.2 shall also satisfy the well to well minimum spacing requirement of Rule 5.3.7.1 but a replacement well in any other aquifer subjected to the 300 feet distance limitation of Rule 6.2 shall not be required to satisfy the well to well minimum spacing requirement of Rule 5.2.1.

6.4 The originally permitted well site shall be the site as specified on the original well permit or a relocated site as approved by the Commission pursuant to Section 37-90-111(1)(g), C.R.S. Where sectional coordinate distances are not available from any document in the permit file, the original site may be established by field location of the original well.

6.5 A replacement well permit will be limited so as to produce water from the same aquifer or aquifers as the original well.

6.6 A permit for the replacement of a well which was previously completed in one aquifer, but did not fully penetrate the water-bearing materials in that aquifer, shall allow full penetration of that aquifer, except that for a Denver Basin aquifer well, it shall not result in increasing its cylinder(s) of appropriation.

6.7 A replacement well permit shall be limited to the same terms and conditions as the original well permit.

RULE 7 CHANGE OF RIGHTS TO DESIGNATED GROUND WATER

7.1 Applicability and Exceptions

7.1.1 This rule applies to all changes of rights to designated ground water to be processed pursuant to Section 37-90-111(1)(g), C.R.S. A change can be approved only upon such terms and conditions as will not cause material injury to the vested rights of other appropriators. It shall be the applicant's burden to demonstrate that the above criteria are met. Also, the Commission may require the applicant to provide for any administration necessary to ensure compliance with the terms and conditions of any approval under Rule 7.

7.1.2 A change request may consist of but is not limited to the following:

A. Change of well location greater than the distance that was authorized for a replacement well as set forth in Rule 6.2;

B. Change of description of irrigated acreage without an increase in the number of acres irrigated;

C. An increase in the number of acres to be irrigated above the number of acres permitted;

D. A change to commingle two or more wells;

E. A change of type of use (with or without export from a designated basin);

F. A change of the volume of annual appropriation;

G. An increase in the pumping rate in gpm.

7.1.3 For bedrock aquifer wells which are permitted to use designated ground water on the basis of the ownership of the overlying land pursuant to Section 37-90-111(5), C.R.S. or pursuant to an equivalent Commission policy to include those wells covered under Rule 5.4, the historic use amount for such a well shall be the maximum annual amount of water put to beneficial use pursuant to Section 37-90-108, C.R.S. but within the limits of the permitted annual amount except that for those Denver Basin aquifer wells issued on or after July 1, 1991, the historic use amount shall be the permitted annual amount provided a well completion report for the well is filed with the Commission pursuant to Section 37-90-108, C.R.S. This provision shall override any other requirement under Rule 7 to estimate historic use but shall not apply to those wells whose appropriation is not based upon the ownership of the overlying land including those wells having claims to cylinder(s) of appropriation under Rule 5.3.3. If the historic use amount as defined above is less than the permitted annual amount, additional well permits for any such unappropriated ground water may be obtained from the Commission in accordance with the applicable statutes and rules in effect at the time such a new application(s) is filed with the Commission.

7.2 Publication – Except as noted in this section, applications for changes of rights to designated ground water shall be published in accordance with Section 37-90-112, C.R.S. The staff shall act upon an application, or a resubmitted application, within sixty days of the receipt thereof. An incomplete application shall be returned to the

applicant with an explanation; this shall be deemed action by the staff. An application that is found to be complete and requires a publication, shall be submitted to the appropriate newspaper for publication; which shall also be deemed action by the staff. Publication does not require a favorable staff finding and no such indication shall be made. The publication shall indicate (a) the name of the applicant, (b) the well permit number, presently permitted annual volume, presently permitted pumping rate, presently permitted well location, and presently permitted irrigated land or other appropriate description of type of use for each well included within the application, and (c) a general statement describing the changes requested by the applicant. The publication shall also indicate the deadline and location for filing any objections to the application.

7.2.1 The following types of applications may be authorized without publication:

A. A decrease in either the pumping rate, annual appropriation or acreage to be irrigated by a well;

B. A correction in the description of the acreage historically irrigated which is at least 70% within the description of acreage authorized by the conditional permit or the final permit, if a final permit has been granted for the well; or

C. A temporary change of use to overcome an emergency situation for a time period not to exceed ninety days if the staff determines the change will not cause material injury to the vested rights of other appropriators. An emergency situation is defined as a situation affecting public health or safety where a water supply is needed more quickly than the time required to process a permanent change in use.

7.2.2 If an emergency situation as defined in Rule 7.2.1(C) will last for more than ninety days, a temporary change of use may be approved for a time period not to exceed one year, if the staff determines that the change will not cause material injury to the vested rights of other appropriators and the following requirements have been met: (a) an application for a permanent change of use has been filed; (b) the publication of the permanent change application has been initiated; and (c) the publication describes both the temporary change of use and the permanent change of use requested by the applicant. All objections to both the temporary and permanent changes of use will be heard and resolved using the normal hearing process for change of use applications. If the hearing officer (or the Commission) enters a decision which is different than the decision of the staff regarding an emergency situation, the decision of the hearing officer (or the Commission) shall immediately supersede the decision of the staff. Any extension of a temporary approval beyond one year, if the emergency situation continues and the permanent change of use hearing process has not been completed, will be considered and acted upon by the hearing officer (or the Commission) and not by the staff.

7.3 Change of Well Location – In determining whether a proposed new well location will cause material injury to the vested rights of other appropriators, the following factors shall be considered for wells other than those wells covered by Rule 6 and Rule 7.3.6.

7.3.1 The applicant shall be required to provide evidence of historic withdrawals and depletions of water from the well, in accordance with Rule 7.10. In addition, to crop data, applicant may be required to submit a wire to water pump efficiency test and power use data. Terms and

conditions shall be imposed to prevent an increase over historic depletion to the aquifer.

7.3.2 Where the proposed well site would have a greater saturated thickness than the original site, terms and conditions shall be imposed to limit future withdrawals to the permitted historic withdrawal of the well. Future withdrawals shall also be limited so as to not exceed the amount of water physically divertable at the well site if the well was replaced under Rule 6. Limitations on future diversions may include consideration of the effect of any future water level declines at the original site.

7.3.3 No relocation site shall place a well closer to an existing well than the minimum distance required for new wells under rule 5 unless specifically approved by the Commission, or unless the owner of the existing well gives a waiver of claim of injury in writing.

7.3.4 For the Northern High Plains Designated Ground Water Basin, a request to change the location of any well in excess of 300 feet from the original permitted site shall be denied, unless there is water available for appropriation at the proposed well location using the methodology described in Rule 5.2.2.

7.3.5 For all designated ground water basins other than the Northern High Plains Designated Ground Water Basin, a request to change the location of any well in excess of 1/2 mile from the original permitted site shall be denied.

7.3.6 A change in the permitted site of the well to allow its original historic site in the field may be approved by the Commission without any other requirements of Rule 7.3 provided that, based upon the records available in

the State Engineer's office, the same permit could have been issued by the Commission at that location at the time the well was constructed, and that such a change will not otherwise cause material injury to the vested rights of other appropriators.

7.4 Change of Description of Irrigated Acres (No Increase in Acreage).

7.4.1 An application to change the description of acres may be approved if a right to irrigate the claimed number of acres is established pursuant to Sections 37-90-107 and 108, C.R.S., and the requested change will not result in any material injury to the vested rights of other appropriators.

7.4.2 In the case of applications to rotate the irrigation of permitted number of acres within a described area from one year to another, such an application may be approved subject to necessary terms and conditions to ensure no material injury to other vested rights. Such conditions may include, but are not limited to, a totalizing flow meter on the well head, annual reporting requirement of the irrigation plan prior to the irrigation season, and the applicant agreeing to provide for any administration necessary to check compliance with the terms and conditions of such an approval.

7.5 Increase in Permitted Irrigated Acreage

7.5.1 Application shall be on a form prescribed by the Commission. No application shall be considered complete without a statement from the applicant agreeing to comply with metering and administrative requirements set forth in the application.

7.5.2 An increase in acreage allowed to be irrigated shall not result in an increase over the amount of water historically depleted by the well from the aquifer. The future average annual appropriation allowed from a well under this Rule shall not exceed the average legal historic withdrawal of water from the well and may be less than the historic withdrawal to ensure no increased depletion of the aquifer, i.e., to compensate for any reduction in return flows back to the aquifer. The burden of proof for the application shall rest with the applicant. The provisions of Rule 7.10 shall apply to establish the historic withdrawal and depletion by a well.

7.5.3 The allowed maximum annual amount of withdrawal from a well shall be administered by the three-year modified banking provisions of Rule 7.11.

7.5.4 Administrative Conditions – The following conditions are necessary in order to control and monitor ground water withdrawals when operating under an approval of expanded acres:

7.5.4.1 All wells approved for expanded acres shall have a flow meter installed and approved by the Commission or its authorized agent. Any alternate method or device for measurement instead of a flow meter must be Commission approved. A backup meter shall be kept on hand unless a specific backup water measurement program is approved by the staff.

7.5.4.2 No person shall begin the irrigation of expanded acres until the well owner has signed a contract with the Management District or the Commission to pay the actual cost of administration, or until the well owner has contracted with a person or entity acceptable to the Commission to perform the same services as would

otherwise be performed by the Commission, and the Commission determines, after consultation with the District, that the terms of the said contract provide for the required administration of the expanded acres.

7.6 Commingling

7.6.1 Commingling of water from two or more wells may be allowed by the Commission to achieve greater efficiency of water use, to encourage new irrigation methods, to facilitate water availability during temporary shutdown of a well or for any other purpose that enhances the beneficial use of water without causing material injury to vested rights.

7.6.2 A commingling request may be approved only upon such terms and conditions as will prevent material injury to the vested rights of other appropriators. For irrigation wells the applicant shall also be required to demonstrate that the acre-feet per acre appropriation of each well to be commingled is the same when used on their originally permitted acreages. The data required may include crop data, irrigation methods, pump tests and power records.

7.6.3 The withdrawal from each individual well shall not exceed its permitted annual acre-feet appropriation and may be further restricted to ensure no increase in the historic depletion of the aquifer.

7.6.4 Since commingling may be considered as a mechanism of achieving an alternate point of diversion, commingling shall not be allowed where the effect is to enable a greater withdrawal of water than would otherwise be available. For example, commingling shall not be approved if it results in supplementing the water needs of

a use served by a poorly producing well by commingling this well with a better producing well.

7.6.5 Commingling shall not be allowed where the intent or effect is to perfect the water right of a well by means of diversions through another well.

7.6.6 All wells approved for commingling shall have a flow meter installed at their individual wellhead and all such wells must be connected together with pipe(s) or other water-carrying devices of reasonable size sufficient to carry water for the requested use. No commingling of water shall actually commence without first obtaining a commingling permit from the Commission and the approval of the improvements required by this Rule, from the Commission or its authorized agent.

7.6.7 No person shall begin the actual commingling of water of such wells until the owner of the wells has signed a contract with the Management District or the Commission to pay the actual cost of administration or until the owner has contracted with a person or entity acceptable to the Commission to perform the same services as would otherwise be performed by the Commission, and the Commission determines, after consultation with the District, that the terms of the said contract provide for the required administration of the commingling of the wells.

7.7 Change of Type of Use (With or Without Export from a Designated Basin)

7.7.1 A change of type of use or an export out of a designated basin shall not result in an increase over the historic depletion of the aquifer by the well. The future average annual withdrawal from a well under this Rule

shall not exceed the average annual legal historic withdrawal by the well and may be less than this amount to ensure no increased depletion of the aquifer, i.e. to compensate for any reduction in return flows back to the aquifer. Where a change in the season of use will result in an increased ability to withdraw water, conditions or limitations shall be imposed to prevent the changed season of use from resulting in an increase in the withdrawal of water over what would occur during the original season of use under present and future aquifer conditions at the original point of withdrawal.

7.7.2 It shall be the burden of the applicant to demonstrate the historic withdrawal of water and the resulting depletion to the aquifer. The provisions of Rule 7.10 shall apply to determine the historic withdrawal and depletion by a well.

7.7.3 The permitted average annual withdrawal from a well shall be controlled by the three-year modified banking provisions of Rule 7.11.

7.7.4 In consideration of the authority granted to management districts pursuant to Section 37-90-130(2)(f), C.R.S., if the requested change involves export of water out of the boundary of a Designated Ground Water Management District, the Commission shall request written recommendation from the District and shall limit the approval of any export out of the District to an annual acre-feet amount not to exceed the amount approved for export by the District. Such an approval shall also be limited by the provisions of Rules 7.7.1, 7.7.2, and 7.7.3.

7.8 Change of Annual Volume of Appropriation – A change of annual volume of appropriation that does not exceed the permitted amount for a well may be allowed as

determined by the historic use of the well within the limits of other permit parameters and provided that no material injury occurs to the vested rights of other appropriators. For irrigation use the appropriation shall not exceed the current allowable duty of water (acre-feet/acre), as determined under Rule 5.5.

7.9 Increase in Pumping Rate in GPM

7.9.1 An increase in pumping rate for a well may be allowed if such a change does not materially injure the permitted pumping capabilities of other wells and does not result in increased depletion of the aquifer on an annual basis. Where necessary, conditions or limitations shall be imposed to prevent any increase over the historic depletion of the aquifer.

7.10 Determining Historic Withdrawal and Depletion

7.10.1 It shall be the burden of the applicant to determine the average annual historic withdrawal and depletion by a well. The evidence required to determine historic withdrawal and depletion may include irrigation system and pump efficiency tests, information on pump and irrigation method(s), flow meter readings and water consumption records where available, power and crop data and such other data as is determined by the staff to be necessary. Ten or more most recent consecutive years of records shall be submitted unless the applicant can show good cause why the data cannot be supplied.

7.10.2 No credit toward historic use shall be given for water used on acreage which exceeds the number of permitted acres, or for any other water use not authorized by the permit.

7.10.3 The annual historic withdrawal of water computed for any given year shall not exceed the permitted annual appropriation.

7.10.4(a) If in any given year or years the land permitted to be irrigated by a well was placed into a federal set aside or conservation reserve program resulting in limited or no irrigation, average historic use may be computed by excluding such year(s) from the average. Annual reporting to the Commission is not required to take advantage of the provisions of this subrule (a).

7.10.4(b) Water diversion during the calendar year 1997 and during any successive calendar year may be excluded in computing average annual historic use provided at least ten years of water use information is available to compute historic use and provided a written request to exclude water use for any given calendar year is received by the Commission by May 1 of that calendar year. This written request must be on a form prescribed by the Commission. To avoid having applicants pick and choose water use years during this period to maximize the estimate of average annual historic use, a request to exclude water use for any year once submitted can not be withdrawn.

7.10.5 Where historic withdrawal cannot be established using power records or flow meter records, the average annual historic withdrawal shall be determined as follows:

(a) for an irrigation well, the allowable average annual historic withdrawal shall be limited to the historic average of net crop irrigation requirement in acre-feet (potential crop consumptive use minus effective precipitation) on the authorized number of acres

as determined by the Modified Blaney-Criddle method. This determination shall be made as an average of such use for consecutive years for the period of record defined under Rule 7.10.1. When crops which may be grown as irrigated or dry land, i.e., pasture or winter wheat, are included in the cropping pattern, it shall be the burden of the applicant to demonstrate the land was irrigated.

(b) For a well used for other than an irrigation use, the allowable average annual historic withdrawal shall be limited to the actual average historic use as determined from actual records or other data establishing the amount of actual historic use. This determination shall be made as an average of such use for consecutive years for the period of record defined under Rule 7.10.1.

7.10.6 Limitations necessary to prevent an increase over historic depletions to the aquifer shall include a reduction in allowable withdrawal where necessary to compensate for any decrease in return flows to the aquifer, resulting from a change in method of operation.

7.10.7 The Commission staff will make available the values for potential crop consumptive use, effective precipitation, and net irrigation requirement for major crops at key weather station locations in the vicinity of the designated ground water basins as computed by the Modified Blaney-Criddle method. The staff will update this information as necessary.

7.11 Three-Year Modified Banking

7.11.1 Only those wells for which a change in water right has determined historic withdrawal in accordance with Rule 7.10 can use the three-year modified banking provision. To initiate a banking reserve, an applicant must

have a written authorization from the Commission. In the first year, the applicant will be allowed to withdraw an amount up to the specified amount determined to be the allowed average annual historic withdrawal. In successive years, the amount which can be withdrawn during the current year will be the allowed average annual historic withdrawal plus the amount of water in banking reserve for the well, not to exceed the maximum annual permitted appropriation of that well.

7.11.2 The maximum number of acre-feet that can be placed in banking reserve shall not exceed an amount equal to three times the difference between the maximum annual permitted appropriation of that well and the allowed average annual historic withdrawal for that well. The annual amount of water to be added to the banking reserve is the difference in the allowed average annual historic withdrawal minus the amount of water actually withdrawn by the well for that year. Likewise, the banking reserve shall be reduced by an amount equal to the quantity of banking reserve water pumped by the specific well for that year.

7.11.3 The applicant may choose to operate an irrigation well under the terms of the original permit rather than those required for expanded acres, limiting the pumping for that year to the maximum annual permitted appropriation of that well so long as said water is applied only to the land as appropriated under its original permit and none is used elsewhere and the well is not in violation of its permit and/or other approval conditions and any past withdrawals in excess of the approved limitations have been remedied to the Commission's satisfaction. However, this will be cause for reinitiating

the three-year modified banking program to the first year situation with no credit for real or claimed carryover.

7.11.4 For any situation where actual pumping cannot be determined using flow meter records and/or power meter records, it shall be the applicant's burden to demonstrate estimated pumping from the well; (a) for irrigation use from the net crop irrigation requirement (potential crop consumptive use minus effective precipitation) as determined by the Modified Blaney-Criddle method, (b) for any other use, from actual records or other data establishing the amount of actual use. The Commission shall make the final decision on the reasonableness of such pumping estimates. Failure of the applicant to meet this requirement will be a cause for reinitiating the three-year modified banking program to the first year situation with no credit for real or claimed carryover. However, any deficit or overpumping will be carried over the reinitiation of the banking program to prevent injury to other water rights.

7.11.5 The three-year modified banking program shall be adjusted to account for a change in the method of irrigation or any other factor which would affect the allowed historic depletion of the aquifer from the well.

7.11.6 The owners of wells for which a previous change in water right has determined average annual historic withdrawal may apply to the Commission to avail themselves of the provisions of three-year modified banking. For these applications the banking reserve for the current calendar year shall be computed using the pumping that occurred in the prior three consecutive calendar years, so long as the well was operating under average

annual historic withdrawal limits. If the well was operating under average annual historic withdrawal limits for less than the prior three consecutive calendar years, then the actual number of prior consecutive calendar years for which the well operated under the said limits shall be used to compute the banking reserve for the current calendar year.

RULE 8 FLOW METER REQUIREMENTS

8.1 The Commission has the authority to require a totalizing flow meter or other measuring device for any well in a designated ground water basin. In the exercise of this authority the Commission shall consider these rules and Management District rules and regulations. In cases where Management District rules and regulations require a meter, the Commission shall require a meter and notify the applicant of the District's meter requirements as a condition of a new permit, replacement permit, or a change of water right approval unless the District notifies the Commission that it waives the requirement. The Commission shall require meters in the following cases regardless of the Districts' metering requirements:

A. For wells which are relocated pursuant to Rule 7.3.

B. For any rotation of acres approved pursuant to Rule 7.4.2.

C. For all increases of acreage pursuant to Rule 7.5.

D. For any commingling of wells pursuant to Rule 7.6.

E. For any change of type of use approved pursuant to Rule 7.7.

F. For all large-capacity wells for municipal, commercial or industrial use.

G. For all large-capacity wells completed in bedrock aquifers.

8.2 When a meter is required, it shall be the owner's responsibility to keep the meter in acceptable operating condition. The Commission may adopt standards and specifications for measuring devices and the installation, repair, and maintenance of measuring devices. As a minimum, meters shall be installed according to the manufacturer's recommendations and shall contain sufficient recording digits to assure that "roll over" to zero does not occur within three years. Meters shall be maintained by the well owner so as to provide a continuous, accurate record of withdrawals. If the meter is not operational, the well shall not be pumped unless a working meter is installed or unless a specific backup water measurement program approved by the Commission is put into effect.

8.3 The Commission may allow any alternate methods or devices for measurement instead of totalizing flow meters.

8.4 Well owners are responsible to record the meter reading as required but no less than once each year and to retain these records and submit them to the Colorado Ground Water Commission and the applicable management district upon request.

8.5 Exceptions to these metering guidelines may be approved by the Commission on a case by case basis.

RULE 9 COORDINATION WITH GROUND WATER MANAGEMENT DISTRICTS

9.1 The Commission shall request written recommendation from the board of directors of any ground water management district before issuing any orders or promulgating any regulations affecting that district and shall request written recommendations on any permit applications received from within the boundaries of that district.

9.2 The Commission shall contact each district for the purpose of developing a working agreement which sets criteria, timetables, and procedures for the referral requests set forth in Section 37-90-111(3), C.R.S. and Rule 9.1.

RULE 10 SEVERABILITY

10.1 If any portion of these rules is found to be invalid, the remaining portion of the rules shall remain in force and unaffected.

RULE 11 VARIANCE

11.1 Applicability and Exceptions

11.1.1 When the strict application of any provisions of these rules would cause unusual hardship, the Commission may grant a variance for a specific instance provided a written request for the variance is made to the Commission and the Commission finds the request justifiable in accordance with the provisions of this rule.

11.1.2 This rule is applicable to variance requests for all applications for new appropriations and for change applications for high capacity wells located in Designated

Ground Water Basins that require Commission action pursuant to Rule 5 and Rule 7.

11.1.3 This rule does not apply to variance requests made under rules other than rule 5 and rule 7. However, if an application is filed for a replacement well pursuant to Rule 6 and the application includes a variance request to allow the well to be relocated to a place greater than the distance allowed for replacement wells as specified in Rule 6, said request shall be interpreted by the Staff as a request for a change of water right and the Staff shall, consistent with Rule 6.1, evaluate such request pursuant to the provisions of Rule 7 and Section 37-90-111(1)(g), C.R.S..

11.2 Requirements for Variance Requests From Rules 5 and 7

11.2.1 Before consideration of any request for a variance from Rule 5 or Rule 7, the Staff must receive an application for a new appropriation (Rule 5) or for a change in water right (Rule 7). An applicant seeking a variance pursuant to Rule 11 may submit the variance request at the time of application for either the new appropriation or change in water right. The applicant may also submit a variance request after a new appropriation or change in water right application has been submitted, provided the Staff has not acted on the application. However, if the Staff has already acted on the application (i.e. denied the application) the applicant must file a new application and request for a variance.

11.2.2 The Executive Director of the Commission or his Staff shall have the authority to initially review all variance requests and determine whether they are complete and ready for Commission consideration. Such

determinations shall be made within 60 days of the variance filing date. If not, the variance request will be returned to the applicant with a written description of the deficiencies and the steps necessary to cure them. Once the variance request is deemed complete and ready for Commission consideration, it will be published. A copy of the variance request will be sent to the appropriate Ground Water Management District.

11.2.3 Publication of a variance request will follow the provisions of Section 37-90-112, C.R.S.

11.2.4 Any hearing scheduled on the variance request will be held at the next Commission meeting, but no earlier than 14 days after the end of the statutory objection period.

11.2.5 The Applicant requesting the variance shall be required to pay for all publication costs associated with the variance. The Commission will not hear the request for variance unless, at least seven days prior to the time set for the hearing, the applicant has paid all publication costs for the variance request.

11.3 COMPLIANCE – Failure to comply with any portion of this rule may subject the applicant to a denial of its variance request by the Commission.

RULE 12 REVISION

12.1 The Commission may revise any portion of these rules in accordance with the applicable provisions of the Ground Water Management Act, Article 37-90, C.R.S. and the Administrative Procedures Act, Article 24-4, C.R.S. Such revisions may be the result of new data and/or any

other need to upgrade these rules in order to best serve the intended purpose of these rules.

RULE 13 EFFECTIVE DATE

These rules shall become effective on May 1, 1992.

APPENDIX I

Confidentiality Agreement

CONFIDENTIALITY AND NONDISCLOSURE AGREEMENT BY AND BETWEEN THE STATES OF COLORADO, KANSAS, NEBRASKA AND THE UNITED STATES

WHEREAS, the State of Kansas, as Plaintiff, has filed a Bill of Complaint in the United States Supreme Court naming the State of Nebraska and the State of Colorado as Defendants in an Original Action (the "Action") arising out of the Republican River Compact and the United States has appeared as amicus curiae; and,

WHEREAS, the States of Colorado, Kansas and Nebraska and the United States have indicated a willingness to discuss resolution of issues related to the Action and the administration of the Republican River Compact; and

WHEREAS, the States of Colorado, Kansas and Nebraska and the United States have initiated discussions, relating to the resolution of issues related to the Action and the administration of the Republican River Compact on October 4, 2001.

THEREFORE, in consideration of the mutual agreement of the States of Colorado, Kansas and Nebraska and the United States that these discussions are dedicated to the purpose of resolving all disputes between the States, including but not limited to those identified in the Action; the States of Colorado, Kansas and Nebraska and the United States hereby agree, by and through their undersigned representatives, to the following terms concerning the discussions so as to encourage a frank and meaningful

exchange of information in order to facilitate the resolution of any and all disputes:

RELEASE OF INFORMATION TO THE MEDIA

No State nor the United States will disclose or report any substantive information, exchanged or revealed by any other State or the United States, to members of the press or other public information dissemination media. Likewise, no State nor the United States will unilaterally disclose or report any substantive information regarding the status of the discussions and any progress made or not made during the course of said discussions to members of the press or other public information dissemination media. Only upon the prior agreement of all of the States and the United States may substantive matters or reports on the progress of discussions be released to the press or other news media. The States and the United States agree to work together in good faith to agree on the extent to which any disclosure to the media will be made.

USE OF INFORMATION OBTAINED DURING SETTLEMENT DISCUSSIONS IN THE ACTION IS PROHIBITED

In the event the discussions should fail, no information provided, exchanged or distributed during the course of the discussions shall be used against the State [or the United States*] that provided such information or any other State [or the United States*] EXCEPT when said

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[* Added and initialed in original by CDA, DDC, JBD, AW.]

information is otherwise independently discovered through the course of discovery as provided for in the Comprehensive Case Management Plan attached to CMO 6 and as amended. Modeling information made available by the U.S.G.S. to the States in advance of release of the final report shall not be used by any State for any purpose other than settlement discussions. All information, material and data developed jointly by the States and the United States shall not be used for or against any State or the United States. Likewise, the fact that any State or the United States participated in the creation, collection, and computation of such jointly developed information, material and data shall not be used for or against any State or the United States. Neither information developed by the States or the United States for the purposes of settlement discussions nor the content of any settlement discussions shall be discoverable.

RELEASE OF INFORMATION TO THE PUBLIC

Each State and the United States has statutes which it believes are adequate to protect the confidentiality of all documents, materials and communications made for or in connection with the Republican River discussions, whether verbal, written, or electronic in form, and each State and the United States will utilize such laws to the fullest extent permitted to protect such confidentiality except as otherwise agreed by all of the States and the United States.

EFFECTIVE DATE

This agreement shall date back so as to include the discussion meeting held on October 4, 2001, and all subsequent meetings.

SO AGREED TO THIS 19TH DAY OF OCTOBER, 2001.

/s/ Carol D. Angel
On behalf of the State of Colorado

/s/ John B. Draper
On behalf of the State of Kansas

/s/ David D. Cookson
On behalf of the State of Nebraska

/s/ A.F. Walch
On behalf of the United States of America

APPENDIX J1

STATUS OF AGREEMENT ON RRCA GROUND WATER MODEL

As of November 15, 2002

DOCUMENT CONTEXT

The purpose of this document is to summarize the status of the RRCA Ground Water Model. Agreement has been reached among the State of Colorado, State of Kansas, and State of Nebraska in consultation with the United States in the selection of model calibration targets and methods to estimate groundwater pumping and recharge. The RRCA Ground Water Model will be applied in a consistent manner with the RRCA Accounting and Reporting Procedures to ensure consumptive uses from surface water and ground water are properly accounted for. General agreement has also been reached on the process to calibrate the RRCA Ground Water Model. The States and United States agree that coordinated efforts will continue to refine data inputs and model calibration until completion, on or before July 1, 2003.

MODEL DESCRIPTION

The primary purpose of the RRCA Ground Water Model is to quantify within the Republican River Basin the amount, location, and timing of depletions to stream flow from ground water pumping and accretions to stream flows due to imported water supply from outside the basin. The major structural components of the model are:

- The model uses MODFLOW 2000 with the following modules: BAS1, RCH, WEL, STR, EVT, DRN, CHD, and LPF.

- The model domain extends beyond the Republican River watershed from the Platte River in the north and to the Ogallala aquifer outcrops on the southern, eastern, and western boundaries. The model domain coincides with that described in USGS Open File Report 02-175 except in the eastern portion of the Basin where it was extended eastward to the eastern edge of Kearney County, Nebraska and into Adams County, Nebraska to reflect increased water table elevations caused by imported water supplies from the Platte River. The model domain encompasses approximately 30,000 square miles.

- Constant head boundary conditions for the model were assigned along the Platte River, the eastern boundary of Kearney, Clay, Nuckolls, and Adams Counties, Nebraska; and in Cheyenne County, Colorado where the Republican River exits the domain. All other boundaries are no-flow boundaries. See attachment RRCA Ground Water Model Domain.

- The model represents the long term steady-state conditions up to 1940 and transient conditions from 1940 to 2000. Transient conditions are discretized into monthly stress periods. The model will be updated annually by the RRCA to reflect data from 1940 to the current accounting year.

- The model is discretized into one-square mile grid cells.

- The model is a single layer bounded on the bottom by the impermeable Pierre Shale.

- As an interim measure, Saturated Thickness is based upon an average saturated thickness for the period 1940-2000; values were obtained by kriging across the model domain between known data

points. The minimum saturated thickness in a model cell is 10 feet.

- Stream Network was taken from USGS File Report 02-175.
- The interim aquifer base was taken from USGS File Report 02-175, and is subject to adjustment to reflect elevation variances near streams.
- Land surface elevations were obtained from the National Elevation Dataset (NED) one arc second Digital Elevation Model (DEM).
- The aquifer is represented as confined in the present model structure, but will be changed to unconfined aquifer conditions prior to final model calibration.
- Initial hydraulic conductivity and specific yield estimates were taken from USGS File Report 02-175 and are subject to adjustment in model calibration.

CALIBRATION TARGETS

WATER LEVEL

Ground water levels have been measured throughout the Basin since the early 1900's, but the number of sites increased dramatically post-World War II. The source of ground water level information used in the RRCA Ground Water Model is the Ground Water Site Inventory (GWSI) maintained by the United States Geological Survey (USGS) in cooperation with all three States. The tenure of static ground water level data ranges from a single-year measurement at a discrete location to a continuum of annual measurements that began in the early 1950's and continues to date at the same well. Ground water levels

are typically measured once each year, usually in the non-irrigation season when effects from irrigation pumping are minimized. The RRCA Ground Water Model is calibrated to a ground water level data set that contains a total of 350,233 water level records at 10,835 different sites. The GWSI dataset was converted from latitude/longitude to a X-Y coordinate system. The entire dataset, including one-measurement water levels, is available for model calibration except for wells that were determined by the representative State to be clearly erroneous. Water level data from continuous recorders are not presently being applied. A procedure to weight water level targets during the calibration process may be utilized. Additional water level targets may be included upon agreement by all States.

BASEFLOW

Hydrograph separation is a technique that partitions the amount of surface water and ground water that is measured as total streamflow at a river gaging station. Determining the component of total streamflow that is contributed by ground water (also called baseflow) requires professional expertise and judgment. The hydrograph separation analysis used in this application is referred to as the Pilot Point method. This procedure was adopted for application in this ground water model since it combines the increased accuracy of graphical baseflow analysis with the computational efficiency afforded by electronic spreadsheets. Daily streamflow information for one, or multiple years, is easily tabulated in a Microsoft Excel® electronic spreadsheet. Daily hydrographs are subsequently plotted using the graphics package. The analyst performing the baseflow separation uses the tools available in the electronic graphics package to select pilot or turning

points that signify the baseflow component in the total amount of streamflow measured at a river gaging station. A significant contribution of the graphics and computational package afforded by Microsoft Excel® is the flexibility to easily change the assignment of each pilot or turning point upon comparative review with other nearby streamflow hydrographs or in collaboration with another analyst. The analyst may change one or multiple pilot points using the click-and-drag tool to another turning point and instantly recalculate the amount of baseflow for a defined period of time – from a month up to decades. Use of the electronic graphical/computational Pilot Point method also dampens the objectivity criticism of the traditional hand-graphics technique performed by an individual analyst.

For the RRCA Ground Water Model, fifty-seven (57) independent baseflow analyses were performed and adopted as calibration targets. A summary of the estimated monthly baseflows of each analysis is attached. Existing baseflow targets may be revised if found to be flawed, and additional baseflow targets may be adopted upon unanimous agreement by the RRCA Ground Water Modeling Committee. Adjustments for surface water diversions may also be considered and adopted by the RRCA Ground Water Modeling Committee, upon unanimous agreement.

As a supplement to the baseflow separation information developed for selected gaging stations and stream segments, Nebraska compiled miscellaneous streamflow measurements and synoptic baseflow survey data available from the USGS and State of Nebraska into a Microsoft Access® electronic database. The data were collected periodically since 1975, except for the data provided in the USGS Water Supply Paper 779, which were collected in

the late 1920's and early 1930's. The synoptic baseflow data has not been included in model calibration to date, but is available for review and consideration in the final model calibration.

PUMPING

The pumping for municipal and industrial purposes was obtained from the USGS. Each State developed its own estimate of gross irrigation pumping. The following general methodologies for estimating ground water pumping have been agreed to by the States. The States commit to mutual verification of pumping datasets, primarily by comparison to meter records (where available) and to a lesser extent by power records, and independent CIR calculations. The RRCA Ground Water Modeling Committee will continue to refine pumping estimates on commingled irrigated lands in Nebraska.

Colorado

The State of Colorado employed a seven-step procedure to estimate ground water pumping:

1. Total acres irrigated by surface and ground water is estimated for each county based upon data from the respective County Assessor's Office for the area contained in the RRCA Ground Water Model boundaries.

2. The acreage irrigated by surface water is identified from the County Assessor's Records

3. The acreage irrigated by ground water is calculated as the difference between the total acreage and the acreage irrigated by surface water.

4. The maximum farm efficiency for center-pivot sprinkler irrigation and flood irrigation is estimated for each year.

5. The percent of acreage irrigated by center-pivot sprinkler is estimated for each county for each year.

6. The crop water requirement is estimated for each county using the Hargreaves empirical formula calibrated to the Penman-Montieth method for reference crop evapotranspiration. The crop mix for each county is determined from County Assessor records. The effective precipitation is estimated using the procedure outlined in Irrigation Water Requirements, Technical Release No. 21, United States Department of Agriculture, April 1967 (Revised September 1970). The crop irrigation requirement is calculated as the total or potential crop water requirement minus the effective precipitation.

7. Pumping for each county is estimated as Irrigated Ground water Acreage multiplied by Crop Irrigation Requirement multiplied by Fraction of Crop Irrigation Requirement satisfied. This total is then divided by the maximum farm efficiency. The maximum farm efficiency is a weighted average based on the amount of sprinkler and flood irrigation.

Kansas

The State of Kansas uses the following procedure to estimate irrigation pumping for the period of 1940-1988:

1. Determine the potential evapotranspiration (PET) for the irrigated area and crops determined for the study area.

a. Compute reference ET with the Penman-Montieth method for years when detailed climate data are available.

b. Develop calibration coefficients for the Hargreaves method to use prior to availability of detailed weather data.

c. Compute crop PET for study period.

d. Compute effective precipitation.

e. Determine crop distribution from county level crop statistics.

f. Compute crop demand for irrigation water (CIR) on a unit basis (inches per acre).

2. Compile a history of well development, including location, date and source. The main data source is the Kansas water right information system, including its water use database.

3. Compile irrigated area estimates, based on county crop statistics, previous studies and water use reports.

4. Compute the volume of crop demand for irrigation (CIR) on a countywide basis, and use this as an initial estimate of the net irrigation pumping.

5. Compare the estimated net irrigation pumping to the water use reports for 1989-1999. This comparison was used to calculate factors by county, averaged over the period.

6. Use the comparison of estimated to reported pumping to develop a factor to multiply by the crop demand to estimate the actual net pumping for 1940-1988.

The State of Kansas uses the following procedure to estimate irrigation pumping for the period of 1989-2000:

Kansas has received water use reports from water right holders since 1957. In 1989, the Kansas Division of Water Resources (KDWR) was given additional enforcement authority and resources to require, obtain, and review water user reports of all water right holders. As a result, for the period 1989-2000, Kansas relied on the water use reports as its basis for estimating irrigation pumping. The water use report includes the total metered quantity or hours of operation, pumping rate, irrigated acreage, and crop type. Water users with meters are expected to report metered quantity; while those without meters report hours of pumping and diversion rate. Each water use report received by KDWR is reviewed for accuracy and completeness. All wells in the alluvium of the Republican River and its tributaries have been metered since 1998.

Net pumping was determined by multiplying the total pumping by an estimated irrigation efficiency (which includes evaporative spray loss and runoff loss). Recognizing that the type of irrigation has changed over time, Kansas assumed that all irrigation was flood until 1959, with an efficiency of 65%. Center pivots (85% efficiency) and other sprinklers (75% efficiency) were in use starting in 1960, and Low-Energy Precision Application systems (LEPA, 90% efficiency) use began in 1990. For 1960 to 1993, the proportion of center pivot and other sprinklers was interpolated from zero in 1959 to the value reported in the Kansas Water Rights Information System in 1993. The same procedure was applied to LEPA for the period 1990-1993. Flood irrigation was assumed to comprise the remainder each year to bring the sum to 100%.

Nebraska

Nebraska estimates pumping by a method that uses power records to estimate the hours of pumping for irrigation wells in a given area by year. The reported pumping rate for each registered irrigation well is adjusted in accordance with an empirically derived relationship between registered rates and actual rates, as determined through field-testing. The estimated pumping rates are multiplied by scalars that are based primarily on comparisons to metered data. The scalars are required because some wells in Nebraska are supplemental to surface water, because of possible inconsistencies in the registration database, and/or where pumping capacity exceeds potential beneficial use. The hours and rates are combined with the well database to determine pumping amounts, assuming the same hours per well. Scalars are determined based on comparison of countywide pumping totals in the Upper Republican Natural Resources District. An additional scalar is proposed to account for commingled lands in the alluvium. Nebraska will continue its verification of its pumping estimates after 15 November, but does not propose to change its method.

IRRIGATED ACREAGE ESTIMATES

The States agree to the following methodologies for estimating irrigated acreage. The States commit to mutual verification and improving the accuracy of irrigated acreage datasets.

COLORADO

Estimates of the irrigated acreage for 1940 through 2000 in Colorado for the area covered by the RRCA

Ground Water Model include lands in Kit Carson, Yuma, and Phillips Counties and parts of Sedgwick, Logan, Washington, Lincoln, and Cheyenne Counties. A small area of Elbert County is located in the RRCA Ground Water Model area, but since there are no irrigation wells or ditches in that area, it was excluded.

The estimates are based on the County Assessors' records of irrigated acreage and well permit information contained in the Colorado Ground Water Commission's Northern High Plains Well Database with adjustments for irrigated fields set aside under federal farm programs. The results were compared to irrigated crop statistics compiled and published by the Colorado Department of Agriculture and the National Agricultural Statistics Service (NASS) and irrigated acreage records for farms participating in federally subsidized programs that were provided by local Farm Service Agency offices through the U.S. Department of Agriculture. Descriptions of these sources and procedures follow.

County Assessor Records

The county assessor is an elected official in county government and their duties are prescribed by Colorado Revised Statutes. Succinctly, the county assessor must discover, list, classify, and value all taxable real and personal property within their respective county. Procedures for classifying and valuing property are set forth in the "Personal Property Valuation Manual", the "Land Valuation Manual", and other references prepared by the Colorado Division of Taxation. The assessor's appraised property values form the basis for taxing districts to set

mill levies and taxes. The county treasurer is responsible for collecting all property taxes.

For agricultural land, the assessor must determine the value of the land based on its production capability by considering soils, irrigation sources and methods, crop yields, crop values and farm sales. The assessor relies on aerial photographs, county clerk records, the county soil survey, agricultural statistics from NASS, climatological records, interviews with local farmers, and other locally available information. Since 1989, all property is appraised every other year based on sales of equivalent property during the preceding two years. Provisions are allowed to conduct interim appraisals if necessary to reflect a change in property values assessment such as conversion from irrigated cropland to dry land pasture.

The county assessors must publish an "Abstract of Assessment" by August 25 of each year that summarizes the amount and value of various categories of property as of the previous January 1. The abstracts also document the valuation, mill levy, and revenue for each taxing district in the county. Categories of property include irrigated farmland, meadow hay land, dry farm land, grazing land, and other agricultural land. Since 1993, the abstracts tabulate acreage by sprinkler and flood irrigation. The Colorado Department of Local Affairs summarizes the abstracts and submits an annual report to the Colorado General Assembly.

Irrigated land that is taken out of production due to farm programs, such as the Payment in Kind (PIK) and Conservation Reserve Program (CRP), remain classified as irrigated by the county assessor pursuant to requirements in federal authorizing legislation for these programs. They

remain classified as irrigated to assure payment to the farm owner by the federal government is commensurate with irrigated land production capability and to maintain the assignment of tax burden. The Farm Service Agency (FSA) of the US Department of Agriculture (USDA) administers the federal crop programs. Each year, program participants must report crop acreage to the local FSA office that compiles records of irrigated and non-irrigated croplands. Federal farm program acreage records for 1990 through 2000 were available and summarized for each county as CRP fields and fallow fields. Those annual values were deducted from the assessors' irrigated acreage. The PIK Program reduced irrigated acreage significantly in the 1980s. Since the USDA does not retain records for more than 10 years, Colorado estimated the PIK acreage using NASS records as described later in this document.

Colorado Ground Water Commission's Northern High Plains Well Database

The Northern High Plains Well Database covers the entirety of the RRCA Ground Water Model area in Colorado. The information contained in the well database for the model area includes 3,967 ground water well records. Each record includes the well location, use of the water, place of use, pumping rate, irrigated acreage, owner, and priority date. The records for each county were sorted by use, priority date, and location. For each county and priority year, the number of irrigation wells is counted and the acreage shown on the well permits is quantified.

The irrigated acreage identified in the well permits exceeds the actual irrigated acreage identified through

County Assessor data. Review of well permit acreage information indicates most cite a square quarter-section of land, or 160 acres. Center-pivot sprinkler systems are the prevalent water application method in the model area and a typical circular quarter-section system irrigates only 130 acres. Comparison of permitted irrigated acreage with NASS data also indicates the well permit information exceeds the irrigated crop acreage reported by NASS.

Estimate of Surface Water Irrigated Acreage

Surface water irrigation in the Basin in Colorado occurs only in Yuma and Kit Carson Counties. The surface water acreage was obtained from the respective County Assessor's records that documented a total of 2,902 (Yuma) and 1,861 (Kit Carson) acres in 1940. These quantities were carried forth to date and do not reflect the small decrease in surface water irrigation that has occurred since 1940.

Estimate of Irrigated Acreage by County Over Time

The assessors' records of irrigated acreage for Kit Carson and Yuma Counties include land irrigated from surface water sources that precede 1940. Irrigation of additional acreage after 1940 can be attributed exclusively to ground water development. Review of historic county assessor records confirms there has been little change in irrigated acreage since 1979 and the Assessors' records for recent years provide the most accurate quantification of irrigated acreage in each county.

To estimate the irrigated acreage over time, the ratio of the assessors' reported acreage in 2000 to the cumulative

acreage under all well permits for irrigation is calculated. For Phillips, Sedgwick, Logan, Washington, Lincoln, and Cheyenne Counties, that ratio is multiplied by the annual cumulative well permit acreage to determine the acreage in a specific year. For Kit Carson and Yuma Counties, the ratio was multiplied by the yearly permitted acreage and the resultant was added to the previous year's acreage to account for surface-water irrigated land developed before 1940. For 1990 through 2000, the fallow irrigated fields and fields idled due to farm programs (USDA records) were deducted from the calculated acreage to determine the net irrigated acreage for those years. From 1982 through 1988, significant acreage was taken out of production through the USDA's Payment in Kind (PIK) program. The USDA represents that it does not have records of the county acreage idled by this program during the 1980's because it retains records on individual farms for only 10 years. The NASS records show significant reductions in irrigated acreage, up to 110,000 acres in 1983, in Kit Carson, Yuma, and Phillips Counties. To reflect this program, Colorado combined the NASS acreage for the three counties[1] and calculated the annual reduction percentage from the acreage in 1981.

Year	Total Irrigated Acres	Reduction as Percent of 1981
1981	507,774	0.0
1982	480,443	5.4

[1] The NASS records for the other five counties were not used for these calculations because the irrigated acreage in these counties overlaps into other river basins.

1983	392,562	22.7
1984	426,248	16.1
1985	431,243	15.1
1986	416,416	18.0
1987	465,633	8.3
1988	468,627	7.7

The annual reduction percentages were multiplied by the irrigated acreage in each county and the resultant was subtracted to determine net irrigated acreage.

Colorado Irrigated Acres Summary

The total irrigated acreage in the Basin in Colorado in 2000 was 572,483 acres. Surface water irrigated lands are located only in Kit Carson and Yuma Counties and account for 4,763 acres. The total for lands irrigated by ground water is the difference, or 567,720 acres in 2000. No lands were identified that were irrigated by a combination of surface water and ground water pumping.

KANSAS

For the period 1989-1999, irrigated acres from the Water Use Reports were used. Data for 1999 was used for 2000, as the 2000 data have not been compiled yet. The National Agricultural Statistics Service (NASS) Agricultural Statistics provide countywide data that is most complete in Kansas after 1972; however, some irrigated crops are not tracked individually. The Census of Agriculture data from 1987, 1992 and 1997 were used to distribute some acreage to irrigated crops from the total acreage given in the Agricultural Statistics for the years 1972 to 1988. The revised acreages were then multiplied by an estimate of the percentage of each county's irrigated

acreage in the model area, determined from the Water Use Report data, and used as the irrigated acres for 1972-1988. For the pre-1972 acreage, the annual well count was multiplied by a ratio of acres per well determined from either the Water Use Reports or the adjusted Agricultural Statistics for 1972, whichever gave a better fit to the subsequent year's estimates. Irrigated acreage for each section was calculated by multiplying the annual well count by the irrigated acres per well, with a maximum of 520 irrigated acres per section. All remaining acreage above the 520 limit was assigned pro rata to other sections with less than 416 irrigated acres (80% of 520 acres).

Kansas Irrigated Acres Summary

The total irrigated acreage for Kansas's counties in 2000 is 449,891 acres.

NEBRASKA

National Agricultural Statistics Service (NASS) is an agency of the US Department of Agriculture (USDA). In cooperation with the Nebraska Department of Agriculture (NDA), NASS prepares an estimate of crop acreage by county. Annually they produce "Nebraska Agricultural Statistics" which is a compilation of information about farms, crops, and livestock. Every five years, NASS produces the Census of Agriculture, which is a detailed counting of farms, crops, and livestock. For the intervening four years, the estimates are prepared using a much smaller sample than the census. Periodically, NASS presents revisions to the annual estimates based on the results of the most recent census.

Reports are prepared annually for Nebraska and the data are collected and summarized statewide and by county. Farmers are surveyed each fall following harvest. Those surveys are supplemented with surveys of grain elevators and mills for volumes of grain received, meat packing plants, and other agribusiness. Crops are added and deleted from the annual report as cropping patterns change. For example, broom corn was deleted from the surveys in the 1960s and sunflowers were added in 1990. Generally, the USDA is most interested in farm program crops such as corn and wheat and the NDA is interested in other crops such as alfalfa, grass hay, fruits, and table vegetables.

The annual reports break out irrigated and non-irrigated acreage for some crops. For other crops, such as alfalfa and corn for silage, NASS reports total acreage harvested every year but reports irrigated acreage periodically. In these cases, estimates of the irrigated acreage for the crop is based on the ratio of reported irrigated acreage and total harvested acreage in other years.

Nebraska Irrigated Acres Summary

The total irrigated acreage for Nebraska counties in the ground water model domain in 2000 is 1,692,521 acres.

CROP IRRIGATION REQUIREMENTS (CIR)

Colorado

The potential irrigation requirements for each crop for each county and year was estimated using the Hargreaves equation calibrated to the Penman-Monteith equation. The crop mix was obtained by County Assessor data. Effective

rainfall was estimated using the procedure outlined in Technical Report 21. The gain in soil moisture from winter and spring precipitation was an average of 2.0 inches (source: Republican River Basin Water Management Study, Steven J. Vandas, United States Bureau of Reclamation, March 1983). The net crop irrigation requirement is calculated as the potential consumptive use minus effective precipitation minus the gain in soil moisture from winter and spring precipitation.

Kansas

Using the Penman-Monteith calculations, the composite crop-weighted unit CIR was obtained for each year. Requisite data to calculate the CIR for 1945-1949 was not available, so the average for 1950-1959 was substituted for these years. The unit CIR for 1945-2000, was multiplied by the irrigated acreage described above to obtain volume of irrigation demand for each county. To account for winter soil moisture, a preliminary soil moisture factor was applied to each county in April and, if necessary, May, and was used to offset the CIR at the beginning of the irrigation season. The remaining CIR was then used as an initial estimate of net pumping.

RECHARGE

Estimated recharge is the result of two sources of water: recharge from precipitation and recharge from human activities such as irrigation. Recharge from irrigation is further segmented into two principal components based upon the source of water, surface or groundwater.

PRECIPITATION RECHARGE

Precipitation recharge is a significant variable in the overall water budget because its effect encompasses the entire model domain of over 19 million acres. Average precipitation between 1940 and 2000 varies from approximately 16 inches per year in the western part of the study area to approximately 27 inches per year in the eastern part of the Basin. Recharge from precipitation generally increases from west to east across the domain. Recharge from precipitation is also influenced by soil type. More recharge is generated on sandy soils than clay soils for the same amount of precipitation. Therefore, STATSGO soil maps were used to locate sandy soils in the domain. These areas are commonly referred to as the *sand hills* of Colorado and western Nebraska. Different precipitation to recharge mathematical relationships are assigned to sandy and non-sandy soils.

More complex relationships may be considered, i.e. to account for additional variations in soil types, for non-linear precipitation effects, and for topography. A change in precipitation recharge over time, due to construction of farm terraces and ponds, may be considered.

GROUNDWATER IRRIGATION RECHARGE

The following methodologies are generally agreed upon. The RRCA Ground Water Modeling Committee will develop a common set of procedures and recharge values by system type.

Colorado – Recharge from ground water pumping in Colorado is calculated for each year and for each county. Groundwater recharge from sprinkler irrigation is calculated by multiplying the product of the gross pumping for

sprinkler irrigation by the percentage that returns as deep percolation. In a similar manner, the amount of groundwater recharge from flood irrigation is calculated by multiplying the product of the gross pumping for flood irrigation by the percentage that returns to the aquifer as deep percolation. The total amount of recharge from groundwater per county and year is the sum of the returns to deep percolation from sprinkler and flood irrigation.

Kansas – Return flow from groundwater irrigation was calculated by subtracting the net pumping from the gross pumping. Once the county monthly pumping and return flow values were calculated, they were distributed to the sections within the county using the annual well count and irrigated acreage. A section's percentage of the county's total irrigated acreage was calculated and multiplied by the county pumping and return flows to obtain values for the section

Nebraska – Based on professional judgment, Nebraska has assumed recharge rates that are generally inverse to assumed farm efficiency. From 1940-1970, recharge is assumed to be 30% of pumping, a value representative of gravity irrigation. Thereafter efficiency is assumed to increase, and recharge to decrease, with implementation of sprinkler irrigation and improvements to gravity irrigation systems. The recharge rate is assumed to be 20% in 2000, and the annual values 1970-2000 are determined by interpolation.

SURFACE WATER IRRIGATION RECHARGE

Estimates of surface water recharge that were used in the RRCA Ground Water Model are calculated as follows:

1. Forty (40) percent of diversions for small non-federal ditches and canals.
2. Twenty-five (25) percent for small surface water pumping plants.
3. As provided by the United States Bureau of Reclamation for federal irrigation projects (reference Section IV.A.2.c in the RRCA Accounting Procedures).

PHREATOPHYTES

The potential evapotranspiration rate for the various classifications of phreatophyte vegetation (forest, woody, and marsh) was collapsed into a single ET rate obtained from CROPSIM (Martin, 1984) results for the Akron, McCook, and Red Cloud climate stations on a monthly time step. The maximum phreatophyte ET rate elevation is set at two (2) feet below ground surface and the extinction depth is at twelve (12) feet below the ground surface. For the initial ground water model runs, the change or encroachment of phreatophytes over time was adjusted in accordance with the curvilinear time-relationship developed from aerial photographic data provided by Michaela Johnson in a published Master's Thesis (Johnson, 2001). The method to quantify the aerial coverage of phreatophytes and the distribution over time is subject to review and adoption by the RRCA Ground Water Modeling Committee, upon unanimous agreement.

Colorado – The Colorado Gap Analysis Project (CO-GAP) was initiated in 1991 as a cooperative effort among federal, state, and private natural resource groups in Colorado. The major objectives of the project are to: map actual land cover as closely as possible and make all GAP Project

information available to users in a readily accessible format to institutions, agencies, and private land owners. Landsat imagery was acquired or interpreted to establish a baseline map of vegetation and land cover. Attributes were assigned to each polygon describing primary, secondary, and other land cover, crown closure for forested primary types, and the types of wetlands and/or disturbance found in the polygon, if any. Polygon attributes were assigned using image interpretation, existing maps, field reconnaissance, digital reference layers from Federal land management agencies, and literature sources.

Kansas – Landsat TM7 imagery from 2000 was obtained covering most of the RRCA Ground Water Model area, except for the far south-central and far-eastern portions. Tributaries with visible phreatophyte cover were mapped as a subset of the hydrographic drainage network available as a digital line graph from the USGS. Tributaries were then divided according to the relative width of the riparian cover. Within each of these discrete reaches, cross sections from the outside boundaries of the riparian vegetation were then mapped and the average cross section within the reach was calculated. One-half of this average cross section was used as the distance from the hydrographic channel mapped by the USGS to map a polygon to enclose the riparian phreatophyte corridor along the reach. These polygons were merged with the Nebraska polygons denoting woody phreatophytes because some areas mapped as woody phreatophytes lay well outside of the riparian corridor. For evaluation of the change in phreatophyte ET over time, Kansas is using two techniques: (1) the Normalized Difference Vegetation Index (NDVI) satellite index to evaluate the change in relative water use between 1974 and 2000 on selected major tributaries, and (2) a time series of air photos for 16

main stem and tributary locations spread throughout the basin on which the vegetation will be evaluated using intercept methods

Nebraska – the Nebraska Department of Natural Resources (NDNR), in association with the Nebraska Conservation and Survey Division maintain a collection of digitally rectified aerial photography for landscape analysis. This data has a resolution of 20-ft. and was projected in UTM, Nad83. The NDNR digitized the 1993 Digital Orthophoto Quarter Quadrangle to identify phreatophyte forests from visual examination of the black and white aerial photography at a scale of 1:15,000. Polygons were fit over the photographs in ESRI's Arc View GIS then reprojected into the RRCA Groundwater Model projection (UTM, Nad27). Approximately 100 sites were visually inspected during field reconnaissance to verify the distribution of woody phreatophytes obtained from the aerial photography. The polygon output provided by Kansas was combined with the aerial photography analysis by Nebraska to include wetland areas in the minor tributaries, with corrections to exclude polygons of irrigated croplands. To accommodate the synoptic biases due to scale, polygon correction was performed at a scale of 1:50,000. Polygons to represent the phreatophyte areas downstream of Red Cloud, Nebraska and the extended groundwater mound area in Kearney and Adams County, Nebraska were derived from aerial photography at a scale of 1:50,000.

CALIBRATION PARAMETERS

Calibration parameters are physical, climatic, and/or aquifer properties that can be adjusted to so that the mathematical representation of a ground water model

better represents actual conditions. Selection of final values for calibration parameters requires consideration of the match between model outputs and calibration targets, and whether such values are reasonable considering geologic, climatic, and other conditions in the Basin. Calibration parameters may vary in a spatial context to reflect different physical and/or geographic conditions. The two principal calibration parameters used in application to the RRCA Groundwater Model are hydraulic conductivity and precipitation recharge.

Hydraulic Conductivity: hydraulic conductivity may be defined as the measure of the ease in which water can be transmitted through a porous material, i.e. flow through an aquifer. The hydraulic conductivity values applied in the model are based upon professional expertise and vary across the model domain. The values were distributed spatially using a parameter estimation (PEST) algorithm. Hydraulic conductivity will continue to be refined and statistically distributed throughout the model domain during the calibration process.

Precipitation Recharge: the amount of precipitation that percolates into the ground water aquifer is expressed as a percentage of effective precipitation and is segmented into monthly distributions. Two general soil classifications were identified with the following preliminary precipitation recharge rates: 4% of annual precipitation for sandy soils, and 1% for non-sandy soils, distributed throughout the year. The precipitation recharge rates may change upon final model calibration. An empirical relationship to reflect the non-linear precipitation/recharge rate was developed to satisfy the physical reality that the recharge rate increases in a curvilinear function with increasing precipitation. In general, the relationship adopted for the

calibrated model will be expected to corroborate the basin water budget and the space and time distribution of both runoff and recharge.

Lesser calibration parameters that are used to further refine the ground water model include:

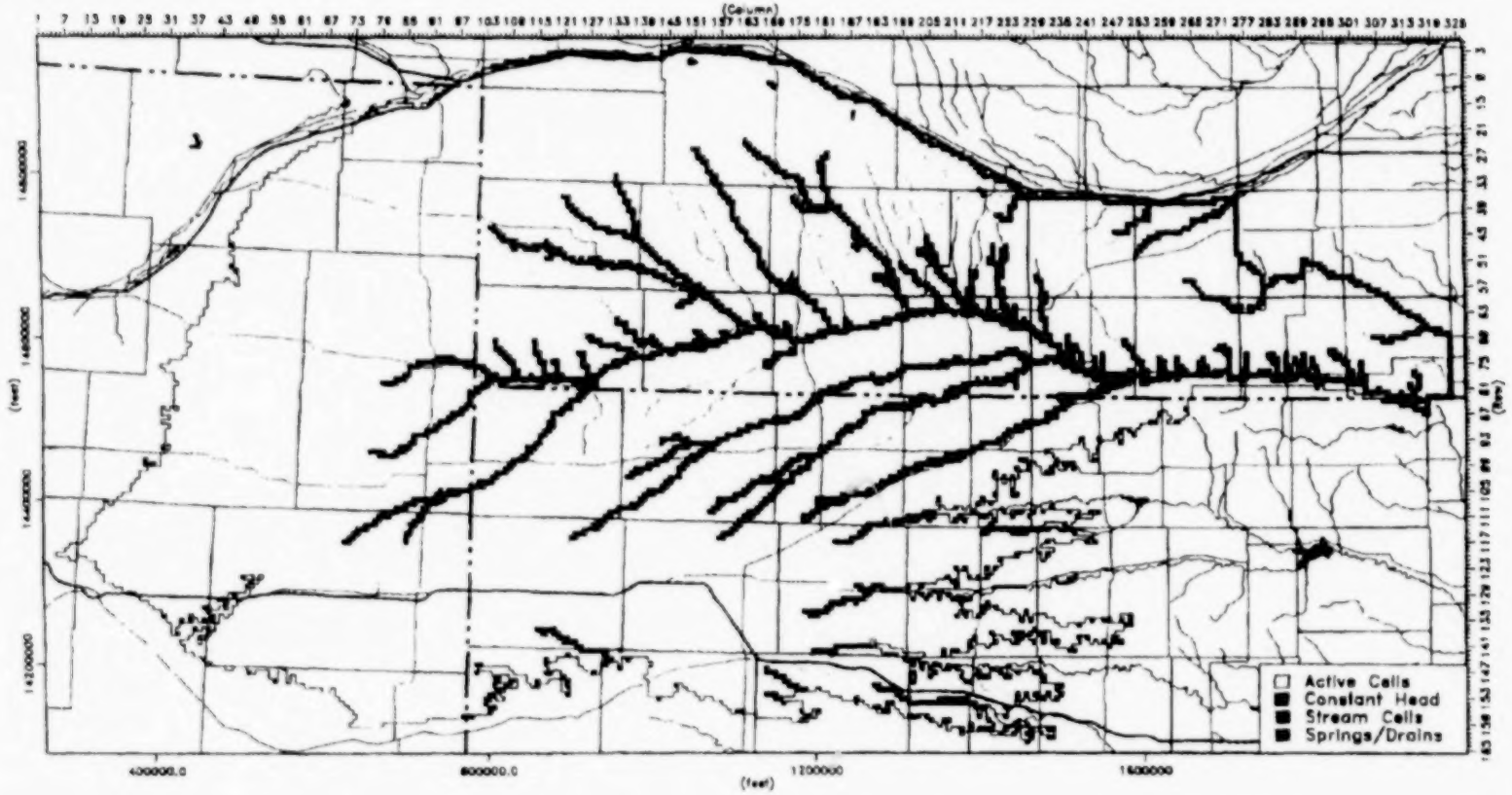
- Canal seepage: will be calculated using a water budget approach of the basic form: *Seepage is equal to Diversions minus Net Evaporation minus Other Net Outflows minus Change in Storage*, when adequate data is available. If only diversions are known, canal seepage will be estimated using the unit loss rates calculated by nearby canals that have sufficient data to employ the water budget approach.

- Phreatophyte potential evapotranspiration rate is indexed to the Red Cloud, Nebraska and Akron, Colorado climate stations with annual rates of 18-36 inches and 30-48 inches respectively. The annual potential evapotranspiration rates were kriged across the model domain.

- Specific yield estimates will continue to be refined during model calibration.

- Residuals: it is recognized that the calibrated model may not perfectly match all the calibration targets, and that residuals (differences between model predictions and target values) may be positive in some sub-basins and negative in others. If necessary, the RRCA Ground Water Modeling Committee will codify a procedure that fairly distributes the residuals among contributory sub-basins and among the three States.

RRCA Ground Water Model Domain



SUMMARY OF ESTIMATED BASEFLOW (October 14, 2002 version)

stations sorted by 1) state where gage is located and 2) name of gage

Index (1)	USGS Station Number (2)	Gage Name (3)	Period of Record Used to Estimate Baseflow for MODFLOW Calibration (4)	State Where Gage is Located (5)	Drainage Area (mi^2) (6)	Name of Baseflow File (7)	Major Component of Streamflow (8)	Comments on Gage (9)	Baseflow Represents (10)	Surface Water Diversions NOT Accounted For in Baseflow Analysis (ac-ft/yr) (11)	Average Baseflow for 1940-2000 or period of record (ac-ft/yr) (12)
1	6825500	Landsman Creek Near Haxtun CO	5/18/1950-8/28/1976	CO	268	CO - Landsman Creek nr Haxtun, Co1 - 6825500.xls	Baseflow and Surface Runoff	None	Total baseflow generated from basin upstream of gage		800
2	6823000	North Fork Republican River at CO-NE Stateline	10/1/1939-9/30/2000	CO	2,370	CO - N Fork Rep at Co-Ne Stateline1 - 6823000.xls	Baseflow	Gage adjusted for Laird and Pioneer Ditch diversions	Total baseflow generated from basin upstream of gage		40,000
3	6822000	North Fork Republican River Near Wray, CO	10/1/1939-9/30/1946 10/1/1951-9/30/1957 10/1/1962-9/30/1964	CO	1,019	CO - N Fork nr Wray, Co1 6822000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		15,000
4	6827000	South Fork Republican River Near Co-Ks State Line	11/7/1945-7/5/1950 5/1/1951-9/2/1956	CO	1,950	CO - S Fork near Co-Ks Stateline3 - 6827000.xls	Baseflow and Surface Runoff	Gage must be adjusted for Haxe Ditch Diversions 1945-6/1950 when data becomes available. No gage below Bonny reservoir 7/1950-4/1951. First storage in Bonny 7/50/1950	Baseflow at gage 1945-6/1950 represents total baseflow generated from basin upstream of gage. Baseflow 5/1951-1956 represents baseflow gain Bonny to Gage		25,000 before Bonny started storing. 3,000 gain Bonny to Stateline after Bonny started storing
5	6825000	South Fork Republican River Near Idalia, CO	5/16/1950-9/8/1971	CO	1,330	CO - S Fork Rep nr Idalia Co2 - 6825000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		18,000
6	6846500	Beaver Creek at Cedar Bluffs KS	5/13/1946-9/30/2000	KS	1,515	KS - Beaver Cr at Cedar Bluffs, Ks1 - 6846500.xls	Surface Runoff	Flows may be modified by Atwood Lake upstream. No daily records exist.	Total baseflow generated from basin upstream of gage		1,300
7	6846000	Beaver Creek at Ludell, KS	10/1/1945-9/30/1953 10/1/1995-9/30/2000	KS	1,411	KS - Beaver Cr at Ludell, Ks1 - 6846000.xls	Surface Runoff	Flows may be modified by Atwood Lake upstream. No daily records exist.	Total baseflow generated from basin upstream of gage		3,100
8	6846300	Beaver Creek near Herndon KS	10/1/1962-9/30/1969	KS	1,535	KS - Beaver Cr nr Herndon, Ks1 - 6846300.xls	Surface Runoff	Flows may be modified by Atwood Lake upstream. No daily records exist.	Total baseflow generated from basin upstream of gage		3,000
9	6847900	Prairie Dog Creek above Keith Sebelius Lake, KS	6/12/1962-9/30/2000	KS	590	KS - Prairie Dog Cr abv KSeb Lake, Ks1 - 6847900.xls	Surface Runoff	One authorized surface diversion exists upstream. Limited surface diversions may occur during the irrigation season but no daily records exist. First storage in Keith Sebelius Lake was Oct 1964	Total baseflow generated from basin upstream of gage		1,600
10	6848000	Prairie Dog Creek at Norton KS	4/1/1944-10/1/1964	KS	684	KS - Prairie Dog Crk at Norton, Ks1 - 6848000.xls	Baseflow and Surface Runoff	First storage in Keith Sebelius Lake October 1964. Gage data not used in baseflow analyses after October 1964 due to upstream reservoir storage	Total baseflow generated from basin upstream of gage		3,500
11	6848500	Prairie Dog Creek near Woodruff, Ks	5/17/1945-9/30/2000	KS	1,507	KS - Prairie Dog Crk nr Woodruff, Ks1 - 6848500.xls	Baseflow and Surface Runoff	First storage in Keith Sebelius Lake October 1964	Baseflow at gage prior to 9/30/1964 represents total baseflow generated from basin upstream of gage. Baseflow after 9/30/1964 represents baseflow gain Norton to Woodruff		Total prior to 9/30/1964 = 3,200. Gain after = 1,800
12	6845110	Sappa Creek near Lyle, KS	10/1/1995-9/30/2000	KS	1,488	KS - Sappa Cr nr Lyle, Ks1 - 6845110.xls	Surface Runoff	Limited surface diversions may occur upstream during the irrigation season but no daily records exist.	Total baseflow generated from basin upstream of gage		5,700
13	6845000	Sappa Creek near Oberlin, KS	5/22/1944-9/30/1972 10/1/1995-9/30/2000	KS	1,088	KS - Sappa Cr nr Oberlin, Ks1 - 6845000.xls	Surface Runoff	No authorized surface diversions exist upstream.	Total baseflow generated from basin upstream of gage		900
14	6844900	South Fork Sappa Creek Near Achilles, KS	7/1/1959-9/30/2000	KS	446	KS - South Fork Sappa Cr nr Achilles, Ks1 - 6844900.xls	Surface Runoff	No authorized surface diversions exist upstream	Total baseflow generated from basin upstream of gage		100
15	6844700	South Fork Sappa Creek Near Brewster, KS	10/1/1967-9/30/1987	KS	74	KS - South Fork Sappa Cr nr Brewster, Ks1 - 6844700.xls	Surface Runoff	No known surface water diversions above this point	Total baseflow generated from basin upstream of gage		0
16	6821500	Ankarsee River at Heiger, NE	10/1/1939-9/30/2000	NE	1,700	NE - Ankarsee at Heiger Ne3 - 6821500.xls	Surface Runoff	None	Total baseflow generated from basin upstream of gage		5,000
17	6847000	Beaver Creek near Beaver City, NE	10/1/1939-7/31/1999	NE	2,380	NE - Beaver Cr nr Beaver City, Ne1 - 6847000.xls	Surface Runoff	None	Total baseflow generated from basin upstream of gage		1,900
18	6836000	Blackwood Creek near Culbertson, NE	6/1/1946-9/30/1988	NE	320	NE - Blackwood Cr nr Culbertson, Ne1 - 6836000.xls	Baseflow and Surface Runoff	None	Total baseflow generated from basin upstream of gage		1,000
19	6839500	Brushy Creek near Maywood, NE	5/1/1951-9/30/1958	NE	130	NE - Brushy Creek nr Maywood, Ne1 - 6839500.xls	Baseflow and Surface Runoff	None	Total baseflow generated from basin upstream of gage		300
20	6823500	Buffalo Cr nr Heiger, NE	10/7/1940-9/20/2000	NE	172	NE - Buffalo Cr near Heiger, Ne1 - 6823500.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		4,300

SUMMARY OF ESTIMATED BASEFLOW (October 14, 2002 version)

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Index (1)	USGS Station Number (2)	Gage Name (3)	Period of Record Used to Estimate Baseflow for MODFLOW Calibration (4)	State Where Gage is Located (5)	Drainage Area (mi^2) (6)	Name of Baseflow File (7)	Major Component of Streamflow (8)	Comments on Gage (9)	Baseflow Represents (10)	Surface Water Diversions NOT Accounted For in Baseflow Analysis (ac-ft/yr) (11)	Average Baseflow for 1940-2000 or period of record (ac-ft/yr) (12)
21	6851000	Center Creek at Franklin, NE	4/1/1948-9/30/1958 10/1/1968-9/21/1975 10/6/1977-12/31/1994	NE	177	NE - Center Cr at Franklin Ne1 - 6851000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		4,000
22	6850200	Cottonwood Creek near Bloomington, NE	4/1/1948-9/30/1958	NE	16	NE - Cottonwood Cr nr Bloomington Ne1 - 6850200.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		3,200
23	6836500	Driftwood Creek near McCook, NE	4/17/1948-9/30/2000	NE	361	NE - Driftwood Cr nr McCook, Ne1 - 6836500.xls	Baseflow and Surface Runoff	None	Total baseflow generated from basin upstream of gage		2,500
24	6852000	Elm Creek at Amboy, NE	10/8/1948-9/14/1953 10/8/1977-9/24/1999	NE	39	NE - Elm Creek at Amboy, Ne1 - 6852000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		9,900
25	6840000	Fox Creek at Curtis, NE	4/1/1951-9/30/1958, 10/1/1977-9/22/1991 10/16/1992-12/31/1994	NE	75	NE - Fox Cr at Curtis, Ne1 - 6840000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		3,800
26	n/a	Frenchman Creek - Gain-Loss Enders Gage to Palisade Gage, NE	6/30/1950-12/31/1994	NE	180	NE - Frenchman Cr - Gain-Loss Enders to Palisade Ne1	Stream Gain or Loss	None	Baseflow represents baseflow gain from Enders Gage to the Palisade Gage		Baseflow =13,600 Total gain = 17,000
27	n/a	Frenchman Creek - Gain-Loss Palisade Gage to Culbertson Gage, NE	7/1/1950-9/15/1999	NE	1,660	NE - Frenchman Cr - Gain-Loss Palisade to Culbertson, Ne1	Stream Gain or Loss	Gage adjusted for Culbertson Canal, Riverside Canal, and Stinking Water Creek Inflow	Baseflow represents baseflow gain from Palisade Gage to the Culbertson Gage		Baseflow =8,000 Total gain = 12,000
28	6835500	Frenchman Creek at Culbertson, NE	10/1/1939-9/30/1949	NE	2,990	NE - Frenchman Cr at Culbertson, Ne2 - 6835500.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		80,000
29	6830500	Frenchman Creek near (above) Champion, NE	10/1/1939-5/31/1943	NE	910	NE - Frenchman Cr nr Champion, Ne1 - 6830500.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		7,500
30	6833500	Frenchman Creek near Hamlet, NE	10/1/1939-9/30/1958	NE	1,270	NE - Frenchman Cr nr Hamlet, Ne1 - 6833500.xls	Baseflow	Initial storage at Frenchman Reservoir was October 23, 1950	Total baseflow generated from basin upstream of gage		65,000
31	6831500	Frenchman Creek near Imperial, NE	1/1/1941-9/30/1994	NE	1,030	NE - Frenchman Cr nr Imperial, Ne1 - 6831500.xls	Baseflow	Gage adjusted for Champion Canal diversions	Total baseflow generated from basin upstream of gage		37,000
32	6841000	Medicine Creek above Harry Strunk Lake, NE	2/1/1950-9/30/1999	NE	770	NE - Medicine Cr abv Harry Strunk Lake, Ne1 - 6841000	Baseflow	First storage in Harry Strunk Lake was August 8, 1949	Total baseflow generated from basin upstream of gage		34,000
33	6839000	Medicine Creek at Maywood, NE	5/1/1951-9/30/1958	NE	231	NE - Medicine Cr at Maywood, Ne1 - 6839000.xls	Baseflow	First storage in Harry Strunk Lake was August 8, 1949	Total baseflow generated from basin upstream of gage		15,000
34	6841500	Mitchell Creek above Harry Strunk Lake, NE	5/1/1950-9/30/1974	NE	52	NE - Mitchell Cr abv Harry Strunk Lake, Ne1 - 6841500	Surface Runoff	None	Total baseflow generated from basin upstream of gage		0
35	6844000	Muddy Creek at Arapahoe, NE	1/1/1951-9/30/1972, 10/1/1977-12/22/1994	NE	248	NE - Muddy Cr at Arapahoe, Ne2 6844000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		4,300
36	n/a	Red Willow Creek - Gain-Loss Below Hugh Butler Reservoir to Red Willow, NE	10/15/1940-5/31/1947 10/13/1960-9/30/1993	NE	Unknown	NE - Red Willow Cr - Gain-Loss H Butler Res to Red Willow, Ne1.xls	Stream Gain or Loss	Gains are adjusted for Red Willow Canal diversions. First Storage in Hugh Butler Reservoir was September 5, 1961	Baseflow represents baseflow gain from Below Hugh Butler Reservoir to Red Willow near Red Willow gage		2,000
37	6837300	Red Willow Creek above Hugh Butler Lake, NE	10/1/1960-9/30/2000	NE	Unknown	NE - Red Willow Cr abv Hugh Butler Lake, Ne1 - 6837300.xls	Baseflow	First Storage in Hugh Butler Reservoir was September 5, 1961	Total baseflow generated from basin upstream of gage		12,500
38	n/a	Republican River - Gain-Loss Below Harlan to Guide Rock, NE	12/1/1952-9/30/2000	NE	1,220	NE - Republican River - Gain-Loss Blw Harlan to Guide Rock, Ne2.xls	Stream Gain or Loss	Gains are adjusted for Franklin Pump, Courtland Canal, and Superior Canal	Baseflow represents baseflow gain from below Harlan County Reservoir to the Republican River at Guide Rock gage		Baseflow = 53,000 Total Gain=107,000
39	n/a	Republican River - Gain-Loss Below Swanson Reservoir to McCook Gage, NE	10/21/1954-9/30/1993	NE	Unknown	NE - Republican River - Gain-Loss Blw Swanson Res to McCook, Ne2.xls	Stream Gain or Loss	Gain adjusted for Frenchman at Culbertson Gage and Driftwood at McCook Gage	Baseflow represents baseflow gain from below Swanson Reservoir to McCook Gage		Baseflow = 8,000 Total gain = 18,000
40	n/a	Republican River - Gain-Loss Benkleman to Swanson, NE	7/31/1950-9/30/1994	NE	Unknown	NE - Republican River - Gain-Loss Benkleman to Swanson, Ne2.xls	Stream Gain or Loss	None	Baseflow represents baseflow gain from Benkleman gages (Republican and South Fork) to Stratton gage		Baseflow = 8,100 Total gain = 1,200

SUMMARY OF ESTIMATED BASEFLOW (October 14, 2002 version)

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41	n/a	Republican River - Gain-Loss Cambridge Gage to Orleans Gage, NE	10/6/1947-9/30/2000	NE	1,120	NE - Republican River Gain-Loss Cambridge to Orleans, Ne2.xls	Stream Gain or Loss	Gain adjusted for Cambridge Canal diversions. Gain includes inflow from several tributaries	Baseflow represents baseflow gain from Cambridge Gage to Orleans Gage		Baseflow = 5,200 Total gain = 31,000
42	n/a	Republican River - Gain-Loss Guide Rock Gage to Hardy Gage, NE	9/3/1950-9/30/2000	NE	360	NE - Republican River Gain-Loss Guide Rock to Hardy, Ne2.xls	Stream Gain or Loss	None	Baseflow represents baseflow gain from Guide Rock Gage to Hardy Gage		Baseflow = 16,000 Total gain = 57,000
43	n/a	Republican River - Gain-Loss McCook Gage to Cambridge Gage, NE	10/23/1954-9/11/1999	NE	2,220	NE - Republican River - Gain-Loss McCook to Cambridge, Ne2.xls	Stream Gain or Loss	Gain adjusted for Red Willow near Red Willow Gage, Medicine Creek Below Harry Strunk Lake Gage, and Bartley Canal	Baseflow represents baseflow gain from McCook Gage to Cambridge Gage		Baseflow = -3,900 Total gain = 11,000
44	6830000	Republican River at (nr) Culbertson, NE	10/1/1939-9/30/1949	NE	5,450	NE - Republican River at (nr) Culbertson, Ne1 - 6830000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		50,000
45	6824500	Republican River at Benkelman, NE	1/16/1947-9/30/1994	NE	4,880	NE - Republican Riv at Benkelman, Ne1 - 6824500.xls	Baseflow	Gage adjusted for Pioneer and Laird Canals	Total baseflow generated from basin upstream of gage		56,000
46	6826000	Republican River at Max, NE	10/1/1939-9/30/1945	NE	7,740	NE - Republican Riv at Max, Ne1 - 6826000.xls	Baseflow and Surface Runoff	None	Total baseflow generated from basin upstream of gage		77,000
47	6850500	Republican River near Bloomington, NE	10/1/1939-8/8/1949	NE	21,020	NE - Republican Riv nr Bloomington, Ne1 - 6850500.xls	Baseflow and Surface Runoff	First storage in BOR reservoirs in Republican River basin was August 8 1949 at Harry Strunk Lake	Total baseflow generated from basin upstream of gage		270,000
48	6853500	Republican River near Hardy, NE	10/1/1939-8/8/1949	NE	22,401	NE - Republican Riv nr Hardy, Ne1 - 6853500.xls	Baseflow and Surface Runoff	First storage in BOR reservoirs in Republican River basin was August 8 1949 at Harry Strunk Lake	Total baseflow generated from basin upstream of gage		284,000
49	6824000	Rock Creek at Parks, NE	10/7/1945-9/16/2000	NE	24	NE - Rock Creek at Parks, Ne1 - 6824000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		8,600
50	6845200	Sappa Creek near Beaver City, NE	10/1/1939-9/29/1972	NE	1,500	NE - Sappa Cr nr Beaver City, Ne2 - 6845200.xls	Baseflow and Surface Runoff	None	Total baseflow generated from basin upstream of gage		2,100
51	6847500	Sappa Creek near Stamford, NE	1/21/1948-9/30/2000	NE	3,840	NE - Sappa Cr nr Stamford, Ne1 - 6847500.xls	Surface Runoff	None	Total baseflow generated from basin upstream of gage		3,900
52	6827500	South Fork Republican River near Benkelman, NE	10/1/1939-9/30/2000	NE	2,740	NE - S Fork Rep nr Benkelman, Ne2 - 6827500.xls	Baseflow and Surface Runoff	Construction of Bonny Dam began December 8 1946 and was completed May 4, 1951. First storage was July 6 1950	1940-46 baseflow is total baseflow generated from basin upstream of gage. 5/1951-2000 baseflow is baseflow gain Bonny to Benkelman		16,000 Before Bonny, 3,600 gain Bonny to Benkelman
53	6835000	Stinking Water Creek near Palisade, NE	10/7/1949-9/30/2000	NE	1,500	NE - Stinking Water Cr nr Palisade, Ne1 - 6835000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		21,000
54	6834500	Stinking Water Creek near Wauneta, NE	10/1/1940-9/30/1950	NE	1,330	NE - Stinking Water Cr nr Wauneta, Ne2 - 6834500.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		14,000
55	6851500	Thompson Creek at Riverton, NE	4/1/1948-9/23/1956 10/5/1966-9/21/1975 10/5/1977-9/30/1999	NE	290	NE - Thompson Cr at Riverton, Ne1 - 6851500.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		14,000
56	6844210	Turkey Creek at Edison, NE	10/15/1977-9/30/2000	NE	75	NE - Turkey Cr at Edison, Ne1 - 6844210.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		6,700
57	6850000	Turkey Creek at Naponee, NE	4/1/1948-9/30/1953	NE	129	NE - Turkey Creek at Naponee, Ne1 - 6850000.xls	Baseflow	None	Total baseflow generated from basin upstream of gage		8,200

Estimated Baseflow - Landsman Creek near Hale, Colo. (09275800)
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950									40	54	59	52	204
1951	81	81	93	87	79	95	90	79	69	72	71	67	843
1952	77	94	111	120	119	132	108	85	36	30	27	29	948
1953	38	52	72	95	99	115	104	84	59	36	23	23	801
1954	44	61	107	116	109	121	98	83	34	22	15	14	829
1955	24	43	84	84	81	81	71	68	52	29	22	33	852
1956	43	49	58	60	63	81	77	63	46	35	23	17	610
1957	35	74	98	94	83	90	84	83	74	67	60	56	895
1958	80	123	148	142	127	144	124	91	65	56	57	60	1,220
1959	72	83	96	110	109	132	114	77	49	38	34	36	864
1960	50	64	75	78	74	87	83	78	56	31	17	17	707
1961	28	46	61	66	67	81	81	82	66	38	26	28	673
1962	38	52	65	71	69	78	69	59	45	34	27	29	628
1963	36	52	63	63	56	69	57	43	27	14	16	35	530
1964	49	55	67	77	74	72	62	58	47	36	26	13	636
1965	10	14	26	44	48	53	51	52	48	45	46	58	486
1966	67	69	72	73	67	78	60	30	12	15	11	7	566
1967	15	33	47	55	53	58	54	51	37	17	7	8	436
1968	17	28	42	55	57	59	48	31	22	25	24	20	428
1969	17	14	23	45	52	62	50	26	11	7	8	15	331
1970	24	35	45	45	48	67	60	36	20	15	13	12	419
1971	13	12	19	32	33	33	27	23	18	12	10	12	244
1972	14	15	14	10	9	13	20	33	36	30	24	20	238
1973	19	20	21	21	25	41	40	25	19	17	18	16	277
1974	17	17	21	26	30	43	40	26	18	13	12	12	274
1975	18	21	22	18	12	14	14	13	15	20	21	16	202
1976	17	17	17	14	13	17	15	10	7	7			136
1977													
1978													
1979													
1980													
1981													
1982													
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1999													
2000													
Avg 1950-1976	35	48	59	65	64	73	66	52	38	30	27	27	585
Avg 1950-1964	48	68	84	90	88	98	87	71	51	40	34	34	749
Avg 1965-1976	20	25	31	38	37	45	40	30	21	19	18	18	337

Estimated Baseflow - North Fork of Republican River at the Colo-Neb Stateline (06823000)
Acre-feet

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	3,381	3,186	3,315	3,456	3,401	3,683	3,804	3,177	2,854	2,432	2,543	2,888	38,011
1941	3,403	3,335	3,482	3,541	3,278	3,759	3,560	3,454	3,053	2,806	2,786	2,854	39,431
1942	3,405	3,702	4,044	4,053	3,588	3,821	3,580	3,595	3,315	3,260	3,335	3,545	43,203
1943	3,879	3,946	4,001	3,945	3,491	3,751	3,437	3,263	2,870	2,858	2,552	2,580	40,276
1944	2,834	2,990	3,284	3,515	3,448	3,801	3,703	3,753	3,951	3,995	4,080	4,125	43,030
1945	4,305	4,047	4,075	3,883	3,443	3,541	3,282	3,386	3,273	3,382	3,457	3,486	43,660
1946	3,853	3,484	3,538	3,533	3,175	3,485	3,290	3,255	3,098	3,156	3,442	3,906	40,987
1947	4,295	3,802	3,770	3,733	3,288	3,472	3,348	3,627	3,580	3,805	3,740	3,952	44,110
1948	4,254	4,078	4,113	3,947	3,580	3,688	3,450	3,445	3,273	3,382	3,457	3,466	44,139
1949	3,715	3,648	3,782	3,788	3,556	4,272	4,295	4,411	4,219	4,283	4,271	4,180	48,443
1950	4,340	4,161	4,258	4,207	3,755	4,105	3,870	3,838	3,757	4,159	4,325	4,227	48,699
1951	4,504	3,995	3,979	3,853	3,414	3,791	3,703	3,987	3,980	3,880	3,859	3,827	46,442
1952	4,074	4,082	4,295	4,301	4,038	4,338	4,043	3,821	3,488	3,471	3,481	3,502	46,807
1953	3,747	3,739	3,956	4,023	3,559	3,682	3,316	3,183	2,833	2,857	2,717	3,029	40,440
1954	3,582	3,948	4,283	4,218	3,811	3,588	3,168	3,048	2,858	3,009	3,198	3,410	41,938
1955	3,742	3,726	3,918	3,990	3,810	4,085	3,803	3,571	3,174	3,084	3,188	3,544	43,354
1956	3,912	3,801	3,935	3,935	3,888	3,895	3,806	3,408	3,081	3,084	3,253	3,845	43,208
1957	4,088	4,075	4,189	4,045	3,885	4,257	4,257	4,470	4,183	3,836	3,752	3,670	48,588
1958	3,908	3,884	4,269	4,426	4,088	4,570	4,301	4,131	3,774	3,782	3,892	4,185	49,248
1959	4,488	4,235	4,234	4,037	3,572	3,898	3,918	4,096	4,000	4,148	4,181	4,584	48,980
1960	4,264	4,202	4,388	4,354	4,055	4,307	4,141	4,251	4,029	4,001	3,978	3,964	49,925
1961	4,145	3,997	4,181	4,272	3,914	4,342	4,203	4,334	4,034	3,830	3,834	4,087	49,121
1962	4,324	4,053	4,091	4,033	3,821	4,021	3,920	4,100	3,980	4,085	4,033	3,828	48,089
1963	4,005	4,048	4,281	4,298	3,833	4,111	3,758	3,564	3,150	2,887	3,027	3,283	44,334
1964	3,682	3,707	3,939	3,886	3,750	4,008	3,785	3,732	3,291	2,878	2,787	2,883	42,487
1965	3,385	3,484	3,813	4,088	3,774	4,132	3,888	3,758	3,385	3,149	3,188	3,444	43,387
1966	3,826	3,840	4,058	4,089	3,898	4,039	3,808	3,138	2,831	3,450	3,675	3,948	43,930
1967	3,878	3,530	3,885	3,788	3,372	3,483	3,336	3,822	3,456	3,288	3,125	3,051	41,403
1968	3,308	3,473	3,741	3,780	3,440	3,481	3,349	3,639	3,452	3,220	3,083	3,073	41,016
1969	3,289	3,256	3,453	3,536	3,253	3,880	3,526	3,573	3,313	3,188	3,180	3,310	40,503
1970	3,717	3,942	4,178	4,018	3,528	3,848	3,573	3,440	3,010	2,888	2,882	2,897	41,829
1971	3,428	3,548	3,853	3,868	3,808	3,848	3,557	3,479	3,088	2,741	2,728	3,080	40,902
1972	3,518	3,872	3,947	3,972	3,828	3,698	3,578	3,390	3,146	3,087	3,009	2,989	41,372
1973	3,298	3,521	3,836	3,861	3,547	3,978	3,802	3,772	3,425	3,222	3,188	3,290	42,737
1974	3,634	3,745	4,041	4,148	3,754	4,081	3,848	3,261	2,738	2,488	2,504	2,813	40,830
1975	3,278	3,489	3,784	3,808	3,448	3,821	3,688	3,711	3,187	2,532	2,280	2,507	39,536
1976	2,889	3,357	3,723	3,741	3,401	3,580	3,036	2,882	2,494	2,218	2,195	2,452	35,877
1977	2,898	3,089	3,491	3,877	3,401	3,718	3,480	3,335	2,883	2,525	2,448	2,888	37,569
1978	3,082	3,188	3,382	3,382	3,013	3,234	2,888	2,888	2,529	2,250	2,125	2,184	34,203
1979	2,429	2,956	2,841	2,420	2,211	2,758	2,783	2,800	2,583	2,424	2,384	2,492	30,441
1980	2,783	3,032	3,317	3,425	3,177	3,214	2,950	2,804	2,671	2,815	2,579	2,584	35,198
1981	2,791	2,807	3,125	3,152	2,930	3,413	3,314	3,256	2,887	2,917	2,807	2,888	36,687
1982	3,178	3,135	3,224	3,125	2,757	3,003	2,958	3,230	3,108	2,886	2,830	2,884	36,589
1983	3,231	3,326	3,558	3,523	3,248	3,788	3,553	3,272	2,910	2,880	2,804	2,888	38,727
1984	2,877	2,987	3,011	3,423	3,536	3,874	3,583	3,270	2,836	2,702	2,794	3,121	37,123
1985	3,486	3,457	3,807	3,588	3,208	3,483	3,145	2,804	2,582	2,874	3,088	3,219	38,558
1986	3,483	3,380	3,537	3,564	3,192	3,435	3,162	3,028	2,720	2,818	2,818	2,740	37,487
1987	2,992	3,000	3,153	3,150	2,838	3,475	3,439	3,481	2,883	2,387	2,195	2,484	35,635
1988	2,824	2,929	3,035	2,838	2,703	3,219	3,086	2,796	2,457	2,448	2,518	2,887	33,527
1989	2,944	2,980	3,172	3,221	2,845	3,291	3,001	2,884	2,272	2,183	2,185	2,372	33,218
1990	2,870	2,757	2,884	3,108	2,849	3,126	2,888	2,753	2,429	2,287	2,212	2,284	32,349
1991	2,574	2,795	3,023	3,088	2,818	3,178	3,092	3,164	2,980	2,872	2,852	2,328	34,499
1992	2,481	2,784	3,187	3,380	3,175	3,210	2,820	2,488	2,230	2,354	2,415	2,400	32,942
1993	2,504	2,405	2,524	2,832	2,562	3,126	3,088	3,008	2,838	2,341	2,351	2,882	31,887
1994	3,044	3,033	3,138	3,047	2,885	2,911	2,708	2,824	2,338	2,181	2,153	2,328	32,182
1995	2,570	2,558	2,857	2,808	2,387	2,775	2,820	3,056	2,805	2,413	2,241	2,333	31,223
1996	2,675	2,840	3,181	3,128	2,781	2,750	2,453	2,344	2,121	2,081	2,177	2,410	31,080
1997	2,724	2,782	2,803	2,485	2,110	2,537	2,248	2,287	2,101	1,995	1,877	1,855	27,581
1998	2,041	2,181	2,389	2,384	2,187	2,522	2,421	2,357	2,102	1,841	1,843	1,828	26,195
1999	2,185	2,582	2,886	3,081	2,831	3,145	2,825	2,436	1,958	1,888	1,587	1,712	29,013
2000	1,972	2,134	2,403	2,588	2,428	2,479	2,183	1,948	1,734	1,810	1,887	1,957	25,512
Avg 1940-2000	3,382	3,393	3,580	3,610	3,294	3,596	3,388	3,323	3,032	2,930	2,933	3,054	39,505
Avg 1950-1984	4,039	3,981	4,145	4,129	3,743	4,070	3,853	3,836	3,565	3,529	3,585	3,683	46,139
Avg 1985-2000	2,643	2,748	2,944	2,951	2,707	2,989	2,818	2,695	2,380	2,234	2,195	2,291	31,816

Estimated Baseflow - North Fork of Republican River near Wray, Co. (6932000)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	1,168	1,232	1,356	1,415	1,345	1,422	1,304	1,208	1,024	905	921	1,081	14,377
1941	1,243	1,254	1,334	1,380	1,244	1,385	1,342	1,382	1,274	1,185	1,148	1,177	15,350
1942	1,274	1,279	1,386	1,415	1,285	1,388	1,338	1,312	1,179	1,064	1,041	1,121	15,057
1943	1,298	1,320	1,384	1,323	1,178	1,332	1,280	1,308	1,186	1,024	842	856	14,499
1944	1,087	1,198	1,356	1,427	1,357	1,423	1,358	1,384	1,281	1,121	1,032	1,011	15,003
1945	1,181	1,339	1,477	1,436	1,252	1,325	1,278	1,382	1,383	1,480	1,484	1,393	18,348
1946	1,431	1,394	1,397	1,299	1,118	1,208	1,171	1,247	1,107	886	791	852	13,902
1947													
1948													
1949													
1950													
1951													
1952	1,428	1,413	1,488	1,512	1,440	1,570	1,481	1,448	1,280	1,169	1,108	1,111	16,457
1953	1,256	1,387	1,519	1,482	1,328	1,477	1,404	1,387	1,241	1,135	1,058	1,073	15,709
1954	1,139	1,283	1,435	1,436	1,285	1,382	1,248	1,201	1,103	1,108	1,119	1,142	14,809
1955	1,239	1,252	1,334	1,358	1,230	1,340	1,287	1,384	1,271	1,178	1,151	1,202	15,215
1956	1,298	1,275	1,348	1,392	1,269	1,333	1,238	1,222	1,115	1,088	1,083	1,112	14,780
1957	1,243	1,301	1,387	1,388	1,287	1,496	1,496	1,538	1,433	1,360	1,291	1,213	16,405
1958													
1959													
1960													
1961													
1962													
1963	1,373	1,358	1,431	1,484	1,340	1,496	1,384	1,340	1,224	1,218	1,251	1,288	16,123
1964	1,383	1,340	1,395	1,398	1,313	1,418	1,354	1,341	1,204	1,108	1,082	1,144	15,456
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Avg 1940-2000	1,263	1,307	1,399	1,408	1,265	1,398	1,331	1,338	1,218	1,135	1,098	1,119	15,293
Avg 1950-1964	1,293	1,325	1,413	1,426	1,312	1,438	1,365	1,358	1,234	1,168	1,138	1,152	15,818

Est Baseflow - S. Fork of Rep Riv at Co-Kn Stline (Total prior to 7/6/1950, gain below Bonny 5/1/1951-7/6/1950)
(values in cu ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946			2,464	2,675	2,505	2,773	2,571	2,413	2,030	1,706	1,568	1,652	22,377
1947	2,002	2,381	2,758	2,885	2,670	2,965	2,888	2,950	2,265	1,072	414	415	25,841
1948	949	1,927	2,582	2,708	2,526	2,543	2,193	1,881	1,453	1,194	963	796	21,696
1949	1,310	2,368	3,117	3,308	3,104	3,503	3,252	2,987	2,110	886	757	1,785	28,498
1950	2,518	2,671	2,984	3,130	2,881	3,083	2,698	2,328	1,538				23,770
1951								251	350	406	439	443	1,888
1952	475	474	486	481	392	358	300	276	121	156	193	25	3,020
1953	142	146	202	298	381	514	528	481	279	-48	211	183	2,513
1954	12	316	506	522	494	583	510	370	147	133	171	55	3,187
1955	229	334	443	524	492	498	382	229	53	128	125	70	3,002
1956	181	193	267	387	409	413	322	192	155	248	248		3,015
1957													
1958													
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2000													
Avg 1946-1956	886	1,201	1,581	1,690	1,581	1,721	1,563	1,303	955	506	369	582	12,601
Avg 1950-1956	589	689	811	887	835	905	790	589	378	32	2	82	5,771

Estimated BaseFlow South Fork of Republican River near Idalia, Co (6826000)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950									415	490	646	874	2,428
1951	1,138	1,302	1,517	1,852	1,485	1,475	1,304	1,270	1,188	1,218	1,243	1,265	16,060
1952	1,316	1,226	1,371	1,639	1,735	2,021	1,867	1,561	1,012	600	600	1,054	15,583
1953	1,425	1,362	1,397	1,425	1,340	1,582	1,400	1,050	821	221	203	565	12,812
1954	1,123	1,676	2,027	1,986	1,778	1,835	1,438	578	115	162	139	45	13,008
1955	340	899	1,519	1,799	1,709	1,782	1,553	1,359	911	336	377	1,070	13,753
1956	1,515	1,544	1,665	1,727	1,653	1,788	1,387	671	262	271	281	236	12,979
1957	825	1,378	1,901	2,054	1,859	2,174	2,088	2,118	1,892	1,889	1,508	1,439	20,786
1958	1,582	1,739	1,899	1,883	1,780	2,108	2,039	1,923	1,520	1,032	866	1,130	19,503
1959	1,489	1,822	2,089	2,051	1,871	2,138	1,807	1,548	894	384	303	770	17,384
1960	1,212	1,500	1,786	1,916	1,678	2,054	1,912	1,781	1,220	446	88	223	15,896
1961	813	1,298	1,563	1,814	1,528	1,827	1,736	1,578	1,122	520	536	1,206	15,071
1962	1,729	1,905	2,128	2,205	1,951	1,975	1,871	1,413	929	356	327	888	17,475
1963	1,429	1,800	2,029	1,928	1,851	1,723	1,362	883	428	152	389	1,083	14,815
1964	1,578	1,874	1,826	1,863	1,774	1,927	1,783	1,830	1,120	388	184	688	16,331
1965	1,079	1,472	1,829	1,948	1,774	1,883	1,488	998	588	389	826	1,274	15,298
1966	1,882	1,888	1,795	1,721	1,574	1,829	1,522	838	475	248	380	874	14,882
1967	1,309	1,543	1,752	1,777	1,650	1,810	1,822	1,729	1,233	487	220	502	15,833
1968	808	1,345	1,688	1,827	1,748	1,813	1,807	1,402	864	481	388	852	14,841
1969	1,080	1,536	1,848	1,854	1,881	1,870	1,810	1,218	728	258	318	828	14,823
1970	1,487	1,776	1,989	1,950	1,758	1,998	1,832	1,419	1,202	750	578	729	17,867
1971	1,083	1,483	1,736	1,728	1,551	1,708	1,806	1,567	1,161	530	108		14,220
1972													
1973													
1974													
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Avg 1950-1971	1,222	1,521	1,778	1,836	1,704	1,881	1,684	1,370	914	510	458	879	15,080
Avg 1950-1964	1,223	1,509	1,785	1,839	1,716	1,883	1,675	1,379	918	537	469	830	14,918
Avg 1965-1971	1,221	1,546	1,802	1,829	1,677	1,866	1,642	1,352	909	452	371	826	15,366

Estimated Baseflow - Beaver Creek at Cedar Bluffs, Kan. (6844500)
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946									234	232	300	433	1 199
1947	583	683	800	864	825	946	926	942	797	560	352	115	8 424
1948	0	0	18	55	85	128	143	148	147	161	125	41	1 050
1949	0	0	0	0	86	242	345	409	418	423	453	507	2 888
1950	554	525	516	473	410	462	444	443	383	345	236	77	4 860
1951	0	0	85	201	275	378	498	711	814	894	900	918	5 981
1952	954	823	940	912	834	877	810	758	540	182	0	0	7 749
1953	0	0	0	0	29	103	144	184	127	45	0	0	613
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	24	77	79	26	206
1957	0	0	0	0	0	0	27	88	122	144	146	127	651
1958	138	163	226	312	352	481	483	499	466	443	342	171	4 057
1959	115	156	202	239	233	256	247	248	181	85	0	0	1 944
1960	0	0	0	0	13	45	62	71	68	65	46	18	388
1961	0	0	0	0	0	0	14	45	80	81	46	15	242
1962	0	0	0	0	30	108	163	211	266	381	425	450	2 014
1963	486	470	441	348	270	282	256	212	136	48	35	102	3 087
1964	157	181	227	276	303	373	384	327	222	79	0	0	2 510
1965	0	0	0	0	0	0	73	234	388	573	725	820	2 811
1966	989	1 111	1 231	1 234	1 118	1 240	983	539	214	76	0	0	8 756
1967	0	0	42	128	156	181	186	153	143	180	125	41	1 298
1968	0	0	56	108	137	143	104	37	0	0	0	0	586
1969	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	14	45	61	80	180
1994	89	139	178	196	184	219	220	228	188	123	85	21	1 844
1995	0	0	0	0	25	80	125	143	132	107	70	23	715
1996	0	0	0	0	0	0	25	82	151	251	378	518	1 408
1997	619	806	835	638	583	857	634	637	465	185	0	0	5 840
1998	0	0	55	186	209	241	214	189	104	37	0	0	1 186
1999	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	20	68	68	24	0	0	0	0	180
Avg 1946-2000	87	92	104	114	114	138	140	139	124	105	80	61	1 312
Avg 1950-1964	160	161	174	184	183	224	234	252	228	188	152	127	2 269
Avg 1986-2000	47	50	58	66	68	80	86	85	70	48	36	41	744

Estimated Baseflow - Beaver Creek at Luckell, Kan. (6844000)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946	0	0	9	27	74	180	222	220	212	227	253	286	1,711
1947	373	465	532	526	497	810	906	591	477	373	178	57	5,233
1948	0	0	0	0	0	0	25	82	124	186	139	45	581
1949	0	0	0	0	186	856	881	868	717	487	422	512	4,719
1950	592	587	543	396	374	820	681	643	554	489	336	109	5,924
1951	0	0	45	137	217	384	501	703	799	882	922	914	5,484
1952	923	831	811	779	710	754	712	704	614	203	23	8	6,972
1953	0	0	0	0	34	121	150	131	87	31	0	0	554
1954													
1955													
1956													
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1994													
1995													
1996	0	0	0	0	18	54	104	178	224	285	327	402	1,370
1997	485	517	567	582	528	563	466	422	277	98	0	0	4,532
1998	0	0	55	189	228	299	264	183	78	32	4	1	1,291
1999	0	0	0	0	33	117	152	181	143	148	111	38	880
2000	0	0	12	36	86	180	188	80	0	0	0	0	541
Avg 1940-2000	183	185	198	204	229	348	380	378	323	258	208	183	3,077
Avg 1950-1964	379	366	350	328	334	466	511	545	489	401	320	256	4,734
Avg 1986-2000	97	103	127	158	177	243	237	195	144	109	88	86	1,786

Estimated Baseflow - Beaver Creek near Hamilton, Kan. (6846700)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
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1961													
1962													
1963	367	423	445	387	344	433	443	452	331	118	36	184	3 963
1964	232	233	250	240	297	431	428	338	209	74	0	0	2 752
1965	0	0	0	0	0	0	78	249	428	660	810	852	3 077
1966	969	1 100	1 195	1 141	1 025	1 317	820	621	331	118	0	0	8 577
1967	0	0	78	233	295	354	329	278	215	173	111	36	2 100
1968	0	0	0	0	40	136	136	48	0	0	0	0	360
1969	0	0	0	0	0	0	17	54	54	19	0	0	145
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	227	251	281	291	286	350	336	292	224	186	140	150	2 998
Avg 1950-1964	280	328	344	321	320	432	436	365	270	99	28	82	3 356

Estimated Baseflow - Prairie Dog Creek above Keith Sebelius Lake, Kan. (6847900)
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958													
1959													
1960													
1961													
1962										121	130	121	373
1963	128	125	135	133	121	136	129	120	83	30	17	35	1,184
1964	48	44	62	87	109	119	85	52	21	7	0	0	654
1965	0	0	0	0	17	81	75	65	86	187	278	324	1,113
1966	379	398	428	429	360	436	341	177	70	47	43	81	3,189
1967	90	121	175	242	222	178	132	128	119	123	83	30	1,661
1968	11	32	62	156	177	172	138	101	59	24	52	143	1,149
1969	204	211	227	230	214	248	238	228	186	132	77	[illegible]	[illegible]
1970	28	81	123	148	163	231	225	178	108	36	0	[illegible]	[illegible]
1971	10	28	49	69	84	124	135	135	98	35	0	[illegible]	[illegible]
1972	0	0	0	0	15	50	56	39	21	7	14	[illegible]	342
1973	83	75	96	126	144	200	211	210	152	84	0	0	1,333
1974	15	44	87	170	200	251	211	116	45	18	0	0	1,166
1975	0	0	0	0	20	68	70	25	2	7	13	18	226
1976	31	46	109	220	256	264	234	206	136	49	0	0	1,561
1977	0	0	0	0	6	21	40	68	82	22	36	111	389
1978	151	140	128	103	93	132	136	130	81	32	0	0	1,136
1979	0	0	0	0	39	104	118	83	46	18	0	0	368
1980	0	0	0	0	21	72	95	96	73	29	0	0	386
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	27	84	121	117	83	30	0	0	471
1984	0	0	0	0	28	87	117	126	86	34	0	0	483
1985	0	0	0	0	19	85	85	83	59	21	0	0	332
1986	0	0	18	50	70	100	112	122	95	41	8	5	618
1987	15	44	74	99	108	138	148	161	154	144	119	84	1,288
1988	88	119	139	125	148	242	283	241	167	81	2	1	1,583
1989	17	49	77	87	105	139	119	83	25	9	0	0	895
1990	19	57	105	159	178	211	193	157	100	35	0	0	1,212
1991	0	0	0	0	17	91	82	84	62	22	0	0	328
1992	0	0	0	0	17	58	58	21	12	38	54	57	315
1993	78	108	135	148	175	285	338	378	388	412	415	396	3,252
1994	407	398	405	384	358	403	374	339	292	279	240	179	4,082
1995	211	311	385	431	441	573	566	608	470	235	87	88	4,429
1996	85	167	224	248	278	374	383	358	404	581	691	684	4,486
1997	718	695	723	735	698	742	682	656	480	184	28	81	6,359
1998	198	353	487	643	562	687	616	522	357	175	79	87	4,883
1999	146	239	328	380	381	498	428	380	285	182	130	140	3,497
2000	168	253	315	351	381	422	387	248	133	47	0	0	2,664
Avg 1940-2000	98	109	135	155	184	210	204	178	134	80	67	89	1,589
Avg 1950-1964	87	88	99	115	115	128	112	88	52	53	47	52	736
Avg 1986-2000	145	186	228	252	258	325	318	289	227	182	124	119	2,632

[illegible]

Estimated Baseflow - Prairie Dog Creek at Norton, Kan. (06848000)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944							486	576	609	660	667	628	3,827
1945	830	582	598	588	515	539	508	532	484	426	315	182	5,991
1946	109	156	161	224	220	237	218	206	179	180	181	240	2,293
1947	414	660	633	663	756	883	665	664	634	625	603	382	6,584
1948	241	260	283	283	243	211	180	221	228	234	202	133	2,726
1949	111	119	123	131	129	226	313	434	482	542	532	482	3,592
1950	472	501	507	436	387	525	534	508	480	549	606	660	6,166
1951	715	663	671	610	530	805	801	633	661	776	824	797	8,105
1952	818	780	805	818	775	837	774	711	581	401	232	78	7,587
1953	45	133	231	326	383	480	470	474	447	449	343	135	3,876
1954	84	118	182	252	275	338	352	378	316	208	107	35	2,824
1955	15	44	78	112	158	206	172	61	0	0	0	0	826
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	78	81	149	218	281	271	1,018
1958	280	253	281	278	272	529	349	384	369	380	278	91	3,556
1959	53	156	238	284	288	343	317	288	172	81	0	0	2,177
1960	0	0	15	46	76	125	151	175	157	116	70	23	953
1961	82	182	284	288	270	292	287	312	290	256	194	111	2,606
1962	101	151	178	157	146	192	207	223	233	268	274	247	2,375
1963	241	225	213	182	170	238	245	228	173	102	95	157	2,268
1964	194	182	198	221	239	301	288	176	116	114	83	27	2,118
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
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1996													
1997													
1998													
1999													
2000													
Avg 1944-1964	228	259	293	304	292	345	349	356	332	321	282	220	3,500
Avg 1950-1964	204	227	256	267	263	319	317	309	277	260	225	175	3,069

Est Base flow Prairie Dog Creek nr Woodruff, Kn (6548500) (Total prior to 9/30/1984, after gain Norton to Woodruff)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945									817	477	287	97	1,488
1946	30	89	146	201	213	254	273	319	283	196	152	156	2,318
1947	249	405	561	678	720	926	850	951	842	884	728	407	8,358
1948	298	348	378	338	323	401	370	281	206	182	125	41	3,289
1949	30	89	93	32	97	341	514	667	714	738	877	937	4,528
1950	515	543	525	402	380	531	518	394	318	347	402	478	5,332
1951	552	595	529	415	375	545	635	742	848	1,064	1,178	1,185	8,809
1952	1,186	1,085	1,079	1,081	1,018	1,180	1,100	1,004	774	517	280	131	10,404
1953	93	165	240	305	321	382	417	471	456	428	351	233	3,872
1954	200	223	255	273	283	310	305	308	222	78	0	0	2,436
1955	0	0	30	91	111	123	81	32	0	0	0	0	478
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	28	91	125	141	148	143	675
1958	157	189	208	257	278	384	394	434	392	313	189	85	3,231
1959	27	80	129	165	183	243	237	205	136	48	0	0	1,454
1960	0	0	0	0	27	80	118	123	91	32	0	0	482
1961	0	0	27	82	126	209	251	287	251	170	95	30	1,527
1962	45	133	181	111	83	104	103	97	98	115	138	183	1,390
1963	192	201	211	202	182	210	197	179	122	44	23	67	1,846
1964	91	85	91	100	115	163	180	125	77	27	0	0	1,054
1965	0	0	0	0	0	0	0	0	0	0	0	0	0
1966	18	53	77	83	87	117	107	70	58	81	53	83	868
1967	84	80	100	115	140	228	298	400	430	435	382	275	2,948
1968	234	228	220	193	152	129	111	124	145	193	188	128	2,045
1969	105	101	108	108	110	147	183	187	195	210	208	184	1,827
1970	174	147	128	100	90	131	154	184	175	147	123	107	1,661
1971	127	168	204	220	202	214	202	208	174	118	77	57	1,972
1972	72	114	141	141	136	155	148	133	88	59	28	9	1,235
1973	18	53	85	138	148	173	180	137	108	87	90	120	1,328
1974	172	226	284	324	306	328	290	258	184	129	70	23	2,596
1975	15	44	69	84	71	47	42	72	87	131	123	72	860
1976	69	105	145	179	180	183	181	142	95	34	0	0	1,295
1977	0	0	0	0	10	38	49	54	41	15	0	0	204
1978	14	40	57	60	62	84	88	24	0	0	0	0	408
1979	0	0	0	0	18	63	71	45	23	6	0	0	227
1980	0	0	0	0	0	0	11	38	38	13	0	0	97
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	12	36	85	90	88	73	45	18	0	0	0	0	423
1989	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	11	40	54	56	82	83	82	89	487
1994	113	151	178	178	150	138	118	114	82	29	0	0	1,250
1995	28	75	122	159	136	89	55	60	89	93	88	32	1,025
1996	56	89	154	243	277	312	325	370	406	496	568	673	3,990
1997	786	832	917	957	868	906	840	807	788	682	581	500	8,785
1998	554	682	796	836	788	841	770	709	634	637	600	527	8,358
1999	553	606	667	673	607	663	654	712	697	685	652	572	7,752
2000	531	457	485	511	531	639	602	508	374	254	139	45	5,057
Avg 1945-1964	193	219	245	248	252	335	351	353	331	291	240	186	3,134
Avg 1965-2000	103	119	139	150	144	182	155	154	138	129	115	97	1,804

Estimated Baseflow - Sappa Creek near Lyle, Ks (6848110)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996	181	278	363	418	481	901	712	898	1,027	1,224	1,348	1,376	8,884
1997	1,527	1,603	1,720	1,717	1,543	1,693	1,582	1,531	1,182	686	376	304	15,464
1998	381	562	729	824	808	940	872	788	583	409	277	208	7,380
1999	272	436	589	687	675	789	708	627	519	483	378	269	6,390
2000	289	402	550	697	738	819	899	482	283	157	85	21	5,202
Avg 1996-2000	530	856	790	888	845	964	915	861	719	588	488	436	8,660

Estimated Baseflow - Sappa Creek near Oberlin, Kn. (6848000)
(Values in ac. ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944									61	211	208	144	673
1945	189	168	178	203	205	251	289	305	238	84	3	8	2,097
1946	12	14	17	20	19	21	22	25	29	38	32	10	259
1947	13	38	80	78	81	100	102	106	96	84	72	34	874
1948	17	19	21	21	15	6	0	0	12	36	46	56	234
1949	45	70	85	22	21	73	114	156	188	237	315	415	1,721
1950	473	430	390	307	280	341	343	324	248	148	91	85	3,441
1951	77	57	37	13	29	103	243	482	621	724	786	808	3,980
1952	802	672	814	562	541	870	671	638	449	186	0	0	5,778
1953	0	0	0	0	0	0	1	4	4	1	0	0	11
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	12	36	36	14	0	0	104
1958	5	15	22	25	28	42	52	67	75	88	88	22	507
1959	0	0	0	0	13	45	45	18	0	0	0	0	119
1960	0	0	0	0	9	31	50	70	59	21	0	0	239
1961	0	0	0	0	0	0	10	31	40	38	28	9	156
1962	0	0	0	0	0	0	0	0	13	43	44	14	115
1963	0	0	18	35	84	137	128	73	31	11	0	0	537
1964	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	36	119	155
1966	282	456	535	447	358	382	297	182	64	23	0	0	2,984
1967	0	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0	0
1969	8	23	31	28	29	48	36	14	0	0	0	0	217
1970	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	11	35	35	12	0	0	93
1972	0	0	0	0	0	0	0	0	0	0	0	0	0
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996	8	23	41	59	63	63	60	61	79	125	148	143	874
1997	172	214	212	141	129	229	238	193	122	44	0	0	1,690
1998	0	0	34	105	135	168	148	101	54	19	0	0	796
1999	15	44	72	93	106	145	132	87	66	93	87	49	893
2000	35	38	59	93	129	188	178	87	27	10	0	0	851
Avg 1940-2000	85	89	73	69	88	92	96	93	78	67	58	57	887
Avg 1950-1964	90	78	72	64	64	91	104	118	105	83	64	62	999
Avg 1966-2000	46	64	64	66	112	160	151	106	71	58	47	38	1,035

Estimated Baseflow - South Fork Salmon Creek near Ashland, Kn (8844900)
Values in ac. ft.

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958													
1959													
1960	0	0	0	0	0	0	1	5	5	2	0	0	2
1961	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	1	14	39	55
1966	84	85	104	114	110	126	98	35	0	0	0	0	740
1967	0	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	1	1	0	0	0	4
1972	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	5	17	18	8	48
1976	5	13	19	22	20	17	11	4	0	0	0	0	110
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	71	73	103	120	94	53	0	0	443
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	2	6	12	22	22	18	10	3	94
1988	0	0	0	0	3	11	11	4	0	0	0	0	29
1989	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	6	19	27	41	41	34	27	25	12	10	282
1994	31	58	84	110	116	140	108	38	0	0	3	9	696
1995	12	11	12	15	14	12	13	18	15	5	0	0	129
1996	0	0	4	11	12	10	10	13	15	17	17	15	123
1997	21	33	46	58	64	91	61	46	20	7	0	0	485
1998	5	14	19	19	19	27	25	17	10	3	3	5	166
1999	10	13	18	26	24	21	19	18	13	5	0	0	165
2000	2	6	8	5	8	12	11	4	0	0	0	0	54
Avg 1940-2000	4	6	8	10	11	14	13	9	8	3	2	2	88
Avg 1950-1964	0	0	0	0	0	0	0	1	1	0	0	0	2
Avg 1986-2000	5	9	13	7	10	25	22	14	8	5	4	4	145

Estimated Baseflow - South Fork Sappa near Brewster, Ks (06844700)
(values in sc-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
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1964													
1965													
1966													
1967													
1968	0	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0				0
1988													
1989													
1990													
1991													
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1996													
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2000													
Avg 1940-2000	0	0	0	0	0	0	0	0	0	0	0	0	0

Estimated Baseflow - Arkansas River at Hanglar, No. (08216500)
(values in acre-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	255	186	121	84	172	406	457	365	240	122	151	335	2,889
1941	388	188	184	250	585	713	836	854	887	353	286	430	5,482
1942	586	885	702	626	586	723	801	298	103	80	185	473	5,562
1943	774	1,004	1,136	1,058	847	757	583	517	346	135	28	48	7,245
1944	83	84	108	186	283	438	424	284	153	82	171	331	2,530
1945	466	446	456	458	426	506	526	581	458	170	124	346	4,948
1946	507	572	700	638	778	749	841	804	427	181	128	348	6,453
1947	878	756	879	1,186	1,146	1,287	1,233	1,225	688	330	45	84	9,718
1948	111	110	125	147	181	303	386	429	348	156	131	281	2,649
1949	382	381	347	205	425	1,210	1,544	1,562	1,143	478	229	845	8,486
1950	861	777	782	830	784	808	770	511	387	481	565	887	8,374
1951	753	888	886	624	611	841	1,005	1,280	1,118	880	887	1,081	10,004
1952	1,243	1,003	1,018	1,183	1,327	1,704	1,872	1,467	973	354	98	258	12,297
1953	298	174	339	793	987	1,188	913	385	48	25	12	12	5,109
1954	27	58	87	118	233	529	870	408	236	82	32	70	2,457
1955	88	78	80	82	104	153	188	239	209	114	188	368	1,878
1956	384	198	112	127	208	411	482	372	248	118	94	191	2,821
1957	281	274	306	327	441	818	1,103	1,441	1,342	840	810	601	8,284
1958	314	300	339	402	471	758	856	1,038	888	814	585	328	7,142
1959	298	448	635	818	845	1,347	1,256	850	458	178	33	52	7,315
1960	88	74	75	86	338	1,003	1,182	884	644	238	38	51	4,786
1961	68	61	86	183	327	717	791	625	588	180	184	428	4,035
1962	524	408	385	363	387	808	803	1,080	1,252	1,405	1,188	540	8,881
1963	380	858	870	954	821	887	863	838	582	148	213	560	7,583
1964	729	844	529	836	751	1,043	1,012	782	508	288	249	467	7,515
1965	475	212	78	50	85	220	333	482	546	858	891	838	4,448
1966	704	800	830	707	858	918	848	874	607	430	523	879	8,080
1967	782	787	806	834	773	878	880	888	870	278	153	329	8,031
1968	334	125	73	172	294	510	888	848	894	287	45	58	4,081
1969	78	88	128	188	288	521	784	1,085	845	388	91	108	4,850
1970	183	234	370	541	835	885	854	738	480	187	38	78	5,183
1971	91	73	73	83	188	472	883	887	736	270	19	54	3,822
1972	48	51	80	78	180	441	882	858	323	228	184	420	3,445
1973	571	572	852	756	845	1,342	1,883	1,515	1,088	424	187	432	10,318
1974	574	566	884	841	870	1,087	881	751	488	178	89	231	7,487
1975	256	131	84	108	208	470	588	622	480	215	82	136	3,385
1976	188	188	188	244	304	847	413	258	128	82	38	83	2,483
1977	87	87	86	86	90	86	86	84	83	27	29	80	888
1978	73	58	57	80	86	88	141	222	198	78	80	211	1,340
1979	253	177	130	84	84	148	221	280	258	153	180	375	2,402
1980	383	191	139	278	423	888	847	870	756	288	100	250	5,351
1981	359	380	482	588	771	1,278	1,541	1,788	1,540	1,032	836	408	10,805
1982	258	131	88	117	218	474	758	1,105	977	432	175	259	4,988
1983	258	131	88	110	328	887	1,084	1,043	754	334	88	88	5,223
1984	88	84	83	83	353	1,008	1,144	838	518	274	131	113	4,728
1985	80	48	84	134	188	318	348	330	253	147	184	321	2,412
1986	330	151	178	408	488	580	563	810	437	388	337	280	4,828
1987	181	102	58	45	170	514	814	817	342	136	144	375	3,209
1988	387	158	72	124	171	251	317	412	346	147	78	158	2,633
1989	188	144	108	85	87	212	254	237	173	88	78	188	1,783
1990	178	117	78	58	118	322	414	433	325	128	27	51	2,245
1991	85	81	88	84	128	331	480	529	447	253	128	83	2,598
1992	154	293	858	928	1,010	887	805	578	433	453	488	481	7,181
1993	500	482	454	429	488	807	851	725	533	364	274	311	6,188
1994	311	232	388	782	844	787	831	523	382	381	332	308	5,868
1995	241	83	33	25	86	138	254	433	417	237	122	82	2,132
1996	72	81	38	29	102	291	371	374	348	333	282	187	2,486
1997	157	138	141	154	186	338	386	318	218	86	118	286	2,532
1998	305	128	42	38	84	215	291	341	281	140	85	152	2,107
1999	148	82	22	24	81	231	307	338	282	113	78	188	1,933
2000	177	82	85	215	278	340	282	141	48	25	8	3	1,884
Avg 1940-2000	328	286	307	383	431	683	701	674	515	286	208	283	5,052
Avg 1950-1984	430	362	421	500	588	884	886	805	613	406	317	388	6,575
Avg 1986-2000	238	152	158	228	288	434	461	428	333	217	172	207	3,278

Estimated Baseflow - Beaver Creek near Beaver City, Ne. (06847000)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	3	9	18	28	29	28	26	34	35	33	36	36	312
1941	41	37	58	88	105	116	147	226	280	276	310	364	2,025
1942	384	381	383	382	356	418	443	488	484	504	482	421	5,088
1943	407	386	408	439	424	500	480	463	367	340	130	42	4,286
1944	0	0	0	0	19	83	120	204	286	384	479	510	2,071
1945	562	562	572	536	500	633	672	731	668	628	454	184	6,721
1946	48	58	64	72	86	156	184	203	171	108	110	186	1,436
1947	273	318	382	488	478	578	630	752	714	667	421	308	5,834
1948	130	186	184	200	191	207	188	184	184	311	278	91	2,312
1949	27	80	102	83	110	226	337	487	529	818	642	886	3,841
1950	881	703	678	522	418	501	520	566	551	536	501	444	6,822
1951	364	287	245	294	368	602	701	782	822	884	1,120	1,184	7,744
1952	1,301	1,310	1,391	1,413	1,334	1,431	1,382	1,352	1,087	737	389	130	13,256
1953	28	78	140	214	237	283	299	295	218	77	0	0	1,661
1954	0	0	22	88	82	84	80	77	54	18	0	0	482
1955	0	0	0	0	13	45	52	38	23	8	0	0	180
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	20	84	103	180	153	108	697
1958	115	154	180	171	182	278	318	361	338	322	282	164	2,839
1959	129	137	173	225	237	283	299	232	154	88	0	0	1,880
1960	11	31	48	57	54	61	80	81	67	64	80	84	671
1961	48	61	66	80	80	91	108	127	124	113	89	48	945
1962	41	61	77	83	88	158	214	298	383	462	508	826	2,877
1963	578	580	611	577	486	533	470	409	282	128	83	88	4,837
1964	128	137	158	178	222	361	388	380	272	97	14	40	2,383
1965	56	54	70	101	127	183	182	148	148	220	286	336	1,802
1966	368	422	458	459	407	430	383	348	286	288	211	138	4,212
1967	129	172	233	284	318	411	404	388	320	318	247	120	3,330
1968	88	131	186	178	188	230	210	155	105	78	48	15	1,588
1969	11	31	80	88	88	150	188	185	138	88	86	18	1,034
1970	18	53	86	110	125	172	182	118	88	24	0	0	937
1971	4	12	20	28	36	83	88	148	132	47	0	0	664
1972	11	31	37	28	28	48	31	48	42	43	37	24	417
1973	21	27	37	48	61	80	58	67	81	48	34	15	508
1974	12	24	33	38	34	41	41	43	32	11	0	0	308
1975	8	22	30	28	28	42	44	53	51	48	37	24	418
1976	24	36	48	62	53	80	65	61	45	18	0	0	454
1977	0	0	0	0	4	16	32	60	62	42	23	8	248
1978	3	8	13	18	28	48	48	30	18	8	0	0	210
1979	0	0	0	0	8	31	38	34	27	23	18	8	188
1980	8	18	19	15	22	48	65	80	64	23	0	0	366
1981	0	0	0	0	0	0	0	0	7	23	30	27	86
1982	28	22	20	17	23	48	51	48	39	34	23	8	361
1983	4	12	18	12	18	43	64	68	68	64	48	36	409
1984	36	56	42	42	60	112	136	148	123	84	81	28	898
1985	28	44	56	68	64	88	74	63	71	46	32	31	842
1986	36	38	48	50	61	86	70	81	88	42	34	18	847
1987	23	36	48	52	58	82	88	88	88	34	24	28	628
1988	36	42	64	87	72	83	79	63	41	18	4	12	843
1989	20	27	31	28	18	7	3	8	8	3	0	0	158
1990	0	0	0	0	8	22	27	22	14	5	0	0	98
1991	0	0	0	0	4	13	22	32	27	10	0	0	108
1992	4	12	20	27	28	20	17	20	15	6	0	0	168
1993	5	18	22	25	30	48	64	88	88	86	106	88	810
1994	88	118	136	136	140	188	200	178	131	83	42	14	1,470
1995	18	53	71	85	88	108	116	114	82	61	40	35	837
1996	54	38	48	62	56	88	88	88	88	184	336	536	1,580
1997	708	787	836	836	771	880	881	847	625	271	86	18	7,483
1998	30	88	147	186	224	307	294	238	180	83	11	31	1,771
1999	40	33	48	78	87	108	130	152	151	134			843
2000													
Avg 1940-2000	121	132	148	156	157	189	208	218	194	166	140	118	1,949
Avg 1950-1984	229	236	252	257	254	314	323	334	288	252	212	186	3,148
Avg 1985-2000	76	91	107	115	116	144	144	140	111	71	48	60	1,214

Estimated Baseflow - Blackwood Creek near Cullenbenon, Vic ([redacted])
(values in ML/d)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946									82	86	85	80	333
1947	66	35	19	14	10	11	24	53	81	54	53	59	456
1948	53	24	10	7	5	6	17	41	48	43	38	38	331
1949	34	21	13	8	8	10	19	36	45	45	30	40	352
1950	58	25	11	11	10	11	22	46	55	53	46	44	381
1951	41	34	31	28	21	19	24	45	54	57	57	53	464
1952	53	45	45	47	44	45	41	40	34	30	26	22	471
1953	20	17	18	16	11	4	11	36	56	75	78	80	566
1954	50	41	35	30	22	18	25	47	57	63	64	80	514
1955	54	36	33	33	28	20	24	44	50	48	46	35	473
1956	60	54	52	48	41	44	48	68	68	65	62	62	666
1957	81	51	47	46	40	47	60	81	101	89	101	107	852
1958	108	91	78	85	58	75	94	118	118	112	102	98	1,107
1959	87	84	83	75	62	84	88	87	94	99	95	83	990
1960	75	58	53	50	46	58	80	61	73	104	102	84	807
1961	50	51	52	47	39	44	43	47	54	84	82	79	694
1962	77	77	78	67	53	52	54	73	84	100	102	89	903
1963	92	99	103	82	77	83	84	87	108	122	127	120	1,203
1964	111	85	77	75	73	73	74	87	103	133	131	95	1,122
1965	84	87	80	84	72	78	89	124	143	163	168	152	1,329
1966	149	139	140	137	120	126	123	137	144	165	165	141	1,687
1967	130	116	112	110	97	105	118	146	161	187	180	180	1,661
1968	152	137	136	136	127	136	143	172	178	175	158	128	1,778
1969	113	86	91	88	78	83	100	156	176	200	211	207	1,585
1970	207	182	165	137	110	120	123	143	157	184	179	130	1,835
1971	113	114	123	132	116	112	114	148	183	176	174	157	1,845
1972	152	136	136	137	127	132	131	146	156	180	185	180	1,821
1973	210	222	226	207	174	184	178	187	215	262	278	261	2,417
1974	216	226	208	182	148	152	143	156	156	180	183	186	2,173
1975	170	181	183	167	164	178	189	177	181	204	184	150	2,147
1976	128	108	107	114	104	88	100	128	138	141	125	90	1,378
1977	85	100	114	118	101	98	104	136	153	186	180	136	1,473
1978	136	114	111	106	89	87	93	98	93	90	90	98	1,141
1979	80	54	54	54	47	46	46	57	71	87	82	84	732
1980	42	48	53	50	50	64	74	80	102	121	104	51	851
1981	56	51	54	52	46	53	64	80	84	84	88	90	748
1982	48	65	61	61	51	44	53	66	113	139	133	82	840
1983	68	54	46	41	36	42	47	60	87	79	75	58	671
1984	45	36	43	46	63	46	46	74	90	108	88	59	772
1985	44	42	41	36	31	37	47	72	73	58	41	23	543
1986	17	19	20	17	14	16	21	33	29	10	0	0	196
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	90	81	79	75	66	68	73	94	103	113	110	94	1,030
Avg 1950-1984	86	67	63	56	43	44	56	86	74	83	82	72	736
Avg 1996-2000	17	19	20	17	14	16	21	33	29	10	0	0	196

[redacted]

Estimated Baseflow - Brushy Creek near Maywood, Ne (6839500)
(values in ac ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951								25	27	32	34	35	154
1952	38	40	43	44	41	42	37	32	23	14	15	27	394
1953	34	34	37	40	35	34	30	30	23	13	7	8	325
1954	10	18	21	17	13	15	18	27	24	8	0	0	172
1955	8	18	28	27	27	35	36	21	13	7	5	5	218
1956	10	16	21	22	23	30	29	24	15	5	0	0	195
1957	4	12	17	17	17	24	27	31	26	25	20	15	234
1958	19	31	39	40	37	41	37	33	28	20	17	17	340
1959													
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1995													
1996													
1997													
1998													
1999													
2000													
Avg 1951-1958	17	24	29	30	28	31	30	28	23	16	12	13	257
Avg 1950-1964	17	24	29	30	28	31	30	28	23	16	12	13	257

Estimated Baseflow - Buffalo Creek near Hangar, Tex. (8823500)
[Values in ac-ft]

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941		544	581	599	542	601	552	504	430	382	384	412	5 549
1942	479	527	617	666	644	653	591	569	486	382	387	321	6 564
1943	626	627	658	657	585	664	643	662	491	187	95	243	6 148
1944	357	387	464	519	529	605	614	654	526	290	209	304	5 468
1945	409	478	548	564	502	519	482	432	336	226	235	372	5 084
1946	471	476	526	575	534	573	508	446	324	197	198	380	5 178
1947	488	525	578	580	542	607	575	556	458	335	275	292	5 823
1948	383	445	513	521	495	539	514	505	498	563	586	561	6 105
1949	581	510	498	488	448	588	613	624	475	223	186	418	5 821
1950	563	536	556	548	513	620	617	616	595	637	635	587	7 014
1951	586	584	604	598	545	641	631	635	584	587	551	569	7 097
1952	621	628	671	667	652	700	644	580	408	156	81	209	6 048
1953	356	481	594	645	588	608	522	444	298	123	52	101	4 810
1954	237	437	569	578	529	586	536	498	359	177	168	346	5 019
1955	485	531	591	612	562	622	532	398	241	103	86	207	4 972
1956	315	379	437	450	448	529	483	319	194	125	133	221	4 014
1957	338	447	531	544	517	620	623	640	543	389	259	142	5 804
1958	212	447	560	584	564	650	621	582	513	487	478	482	6 209
1959	503	475	465	487	467	583	573	537	384	182	108	242	5 006
1960	367	442	533	588	600	664	602	508	336	137	85	189	5 071
1961	325	430	511	523	488	570	535	486	339	140	111	267	4 727
1962	400	467	532	548	504	568	560	590	561	544	487	474	6 194
1963	437	480	530	538	484	565	437	224	78	30	89	282	4 185
1964	418	458	514	538	515	551	450	286	147	53	41	112	4 078
1965	203	292	405	514	502	526	442	344	213	83	126	349	3 998
1966	509	551	593	578	513	562	412	147	57	161	277	329	4 708
1967	415	486	569	584	524	544	466	456	318	113	73	214	4 771
1968	345	430	512	548	527	567	462	317	171	81	43	127	4 101
1969	258	411	518	535	482	511	471	483	332	118	47	139	4 266
1970	289	410	506	518	484	561	528	485	335	119	69	143	4 410
1971	282	436	546	567	515	553	522	530	367	138	39	114	4 627
1972	251	429	525	511	474	516	418	247	111	39	78	230	3 831
1973	346	389	447	483	463	541	472	341	185	89	93	274	4 112
1974	382	404	477	573	556	600	437	156	0	0	7	22	3 824
1975	149	377	517	527	479	527	436	301	183	58	0	0	3 536
1976	107	314	462	518	483	484	356	182	81	22	106	311	3 418
1977	408	390	358	389	403	505	402	163	22	8	58	170	3 247
1978	288	380	444	436	394	441	368	248	133	47	58	182	3 398
1979	254	302	364	411	400	459	396	283	181	57	0	0	3 086
1980	81	286	373	382	372	422	423	443	329	117	77	227	3 523
1981	334	367	408	423	410	506	512	518	377	154	118	337	4 443
1982	474	472	482	456	394	423	411	444	335	119	122	357	4 480
1983	479	432	435	445	420	498	485	475	345	136	75	175	4 401
1984	256	297	340	359	367	442	460	488	365	130	45	133	3 885
1985	233	321	386	380	381	415	372	302	203	106	186	443	3 719
1986	380	472	432	383	350	418	397	359	244	87	74	218	4 004
1987	328	380	408	434	398	425	372	318	207	74	85	190	3 578
1988	297	352	405	420	402	435	401	364	248	89	74	216	3 704
1989	318	344	362	338	286	308	289	222	144	51	68	202	2 806
1990	288	284	325	350	333	380	329	244	142	51	40	118	2 892
1991	208	293	355	364	341	398	387	381	274	97	82	241	3 423
1992	335	329	350	378	356	380	278	153	82	22	24	70	2 709
1993	148	248	318	325	303	348	303	231	136	49	57	151	2 812
1994	260	352	414	408	380	383	277	98	0	0	78	233	2 864
1995	324	318	332	338	308	351	348	370	277	86	80	118	3 219
1996	191	242	283	287	287	344	344	339	244	87	85	180	2 901
1997	253	227	237	261	238	241	224	237	177	83	19	57	2 234
1998	108	163	189	188	135	130	88	31	0	0	22	85	1 069
1999	101	120	189	238	248	278	286	280	207	74	46	135	2 182
2000	189	188	208	226	216	220	173	105	48	17	0	0	1 589
Avg 1941-2000	342	403	461	479	448	500	453	390	277	156	140	239	4 287
Avg 1950-1984	411	482	550	566	532	604	557	480	372	295	228	293	5 336
Avg 1985-2000	261	287	319	328	304	334	297	248	181	57	50	147	2 793

Estimated Baseflow - Center Creek at Franklin, Ne. (6891000)
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948							232	225	187	141	103	78	987
1949	108	184	244	271	259	321	308	284	211	117	93	148	2,554
1950	199	226	244	228	217	285	293	290	224	122	80	147	2,565
1951	192	207	234	253	239	258	242	233	189	187	156	170	2,540
1952	225	208	357	373	356	378	301	178	58	56	86	120	2,796
1953	172	201	273	370	389	456	444	435	357	255	213	242	3,808
1954	297	343	381	377	343	390	377	378	320	251	240	291	3,888
1955	347	364	397	409	381	438	403	354	288	251	284	329	4,228
1956	397	404	434	442	413	429	398	356	329	273	247	241	4,381
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													
1966													
1967													
1968													
1969	349	344	385	377	345	379	355	348	313	300	307	334	4,112
1970	378	387	450	440	408	472	445	411	323	225	213	284	4,439
1971	358	363	399	401	399	399	378	383	323	243	221	265	4,091
1972	318	336	382	380	337	385	358	378	348	311	297	307	4,071
1973	336	348	384	412	385	428	402	392	349	320	336	405	4,498
1974	434	378	365	389	341	393	384	387	324	236	218	271	4,099
1975	329	349	375	372	336	381	398	370	343	335	321		3,880
1976													
1977													
1978		359	384	403	378	423	402	380	344	310	298	308	3,992
1979	339	355	398	395	377	456	445	429	378	348	332	338	4,570
1980	380	356	381	399	382	407	385	379	333	187	169	229	3,948
1981	285	304	340	363	343	391	388	407	384	401	392	347	4,375
1982	358	318	314	318	286	381	385	378	356	342	341	386	4,103
1983	372	343	348	350	327	385	380	381	327	282	214	192	3,879
1984	211	244	292	331	334	371	355	342	304	284	284	308	3,858
1985	343	354	382	391	382	413	400	402	372	380	386	389	4,535
1986	418	396	365	338	288	330	336	371	370	360	385	325	4,303
1987	321	310	318	315	291	343	348	386	352	350	349	349	4,009
1988	381	397	428	436	403	409	399	347	303	280	270	275	4,289
1989	317	355	390	385	348	391	387	348	297	253	240	282	3,951
1990	313	358	389	406	369	410	383	397	358	329	317	334	4,377
1991	358	337	355	375	352	389	385	384	343	307	288	291	4,172
1992	328	352	384	385	381	388	358	329	287	273	277	302	4,022
1993	343	358	383	387	357	408	405	427	424	451	458	444	4,843
1994	460	446	458	450	403	445	415	395	355	348	346	358	4,878
1995	382	398	381										1,104
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	323	335	381	371	347	391	369	360	315	275	260	283	3,825
Avg 1950-1964	260	282	332	350	333	378	351	322	258	196	182	220	3,473
Avg 1966-2000	362	367	398	389	362	397	375	374	343	329	323	327	3,966

Estimated Baseflow - Cottonwood Creek near Bloomington, Ne (6850200)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948							256	262	240	223	217	224	1,421
1949	249	261	285	295	272	301	286	293	274	268	271	284	3,343
1950	297	272	271	287	244	280	270	268	247	248	247	250	3,158
1951	289	271	286	290	265	299	287	292	278	278	277	279	3,364
1952	297	293	288	284	261	283	270	287	244	233	230	235	3,194
1953	281	277	300	303	274	286	281	278	251	238	219	197	3,178
1954	214	243	270	271	250	288	278	278	250	237	238	258	3,071
1955	281	277	291	295	267	295	282	288	261	248	250	268	3,304
1956	261	288	300	301	260	298	283	288	261	235	218	213	3,256
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
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1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1948-1956	270	273	288	288	264	292	277	278	256	245	241	245	3,032

Estimated Baseflow - Driftwood Creek near McCook, Ne (6836800)
(Values in cfs)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946								0	0	0	6	16	24
1947	31	40	42	31	23	25	24	25	21	15	8	3	287
1948	5	14	19	19	15	10	7	7	12	23	22	7	181
1949	3	9	13	13	16	27	35	43	35	12	4	12	223
1950	14	8	8	11	12	14	15	18	21	26	28	28	203
1951	27	23	22	22	20	22	21	22	23	29	44	85	340
1952	77	69	65	58	57	75	79	80	64	38	26	34	727
1953	35	28	24	22	21	26	27	25	24	22	18	5	277
1954	0	0	5	14	13	5	4	13	13	5	0	0	72
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	5	18	17	5	44
1957	0	0	0	0	0	0	5	18	20	18	18	22	99
1958	26	27	25	17	15	25	25	19	19	28	33	34	292
1959	31	20	11	4	4	13	18	21	28	48	51	43	290
1960	36	26	26	35	41	53	56	55	55	63	66	63	574
1961	64	60	61	59	54	66	69	77	80	91	91	81	854
1962	80	79	83	83	74	78	79	82	101	120	132	136	1 136
1963	139	124	122	119	104	108	108	118	123	135	138	131	1 488
1964	132	124	126	124	118	126	122	124	123	135	139	120	1 507
1965	125	131	139	136	122	137	140	158	171	200	217	220	1 895
1966	227	211	204	184	147	139	136	169	189	217	229	223	2 275
1967	218	185	183	184	177	168	178	182	172	172	188	182	2 178
1968	177	192	213	221	197	179	158	156	184	198	213	206	2 275
1969	212	204	205	198	181	218	214	207	202	228	232	212	2 511
1970	218	222	233	230	206	228	230	257	262	279	273	244	2 882
1971	244	240	249	247	221	243	245	277	280	289	284	286	3 006
1972	277	283	298	295	270	278	277	314	312	309	307	306	3 529
1973	323	310	312	298	261	280	277	310	330	380	424	456	3 960
1974	483	443	451	484	406	405	371	360	398	441	462	465	5 187
1975	448	383	398	381	317	335	314	318	320	384	380	384	4 270
1976	377	369	385	369	359	369	350	362	357	383	394	369	4 481
1977	394	358	380	383	356	454	468	460	435	451	419	341	4 880
1978	336	360	366	377	327	336	267	269	257	298	308	284	3 837
1979	287	279	282	285	245	302	290	259	227	226	210	180	3 051
1980	200	248	293	314	312	352	331	300	278	300	283	227	3 438
1981	227	253	269	249	216	241	243	269	272	264	283	268	3 075
1982	287	302	317	301	255	281	296	297	313	342	380	424	3 736
1983	437	398	348	352	351	465	469	533	520	528	453	308	5 158
1984	247	242	268	303	304	332	329	348	329	315	280	228	3 525
1985	252	321	380	336	299	351	330	298	291	356	381	381	3 835
1986	359	329	340	359	327	346	319	313	299	311	308	280	3 885
1987	295	313	337	335	318	391	385	302	287	303	317	305	3 848
1988	324	332	355	391	335	347	311	280	274	335	381	348	3 961
1989	354	339	350	354	314	329	284	272	256	284	301	278	3 738
1990	283	278	303	333	313	343	333	348	340	348	318	253	3 795
1991	244	260	291	312	292	325	304	289	258	246	228	201	3 247
1992	218	249	285	302	293	317	282	233	215	264	277	252	3 187
1993	253	248	288	281	274	335	318	272	242	263	254	215	3 221
1994	233	278	309	296	264	290	295	242	229	280	264	238	3 170
1995	241	242	270	307	282	287	277	252	267	288	288	282	3 256
1996	273	262	272	275	255	264	249	253	288	324	368	392	3 457
1997	420	399	398	370	315	334	300	278	253	287	293	240	3 834
1998	278	335	359	310	263	307	280	268	243	251	241	213	3 358
1999	222	238	280	262	237	263	232	193	184	173	167	205	2 837
2000	225	218	238	258	251	285	228	180	178	255	247	191	2 892
Avg 1946-2000	202	201	211	211	193	213	203	196	195	210	211	196	2 418
Avg 1950-1984	44	38	38	38	35	41	42	45	47	52	53	51	525
Avg 1986-2000	281	288	309	314	286	317	291	267	250	277	280	258	3 418

Estimated Baseflow - Elm Creek at Amboy, Mn (05320000)
(values in cfs)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949		822	954	978	879	978	943	969	915	900	901	918	10,284
1950	970	931	950	934	856	1,003	955	897	815	842	883	878	10,569
1951	925	893	922	922	830	910	881	921	898	932	938	913	10,885
1952	941	909	932	952	940	1,085	1,050	962	872	907	911	885	11,346
1953	919	899	942	963	888	1,004	967	947	904	832	774		9,997
1954													
1955													
1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978		933	981	945	850	952	918	923	850	813	784	772	9,898
1979	818	819	846	878	833	1,007	995	975	888	856	827	808	10,569
1980	860	878	944	970	918	978	924	915	807	708	696	696	10,256
1981	787	783	832	835	780	851	802	789	683	670	638	633	9,002
1982	881	788	807	954	899	1,021	998	1,018	980	952	929	895	11,001
1983	923	895	945	955	905	984	957	949	872	716	812	578	10,373
1984	886	795	924	974	945	1,033	998	1,007	894	774	702	894	10,404
1985	750	774	827	829	778	927	931	959	823	823	586	728	9,535
1986	840	878	921	900	805	887	886	884	756	575	534	648	9,523
1987	774	819	884	884	798	884	854	880	787	675	618	629	9,485
1988	725	817	906	909	853	914	859	830	741	694	677	696	9,821
1989	745	729	779	818	782	906	820	805	740	725	696	696	9,141
1990	697	703	754	780	731	843	810	758	713	684	684	658	8,824
1991	695	685	722	738	691	806	805	835	748	641	579	575	8,522
1992	630	664	736	781	751	801	758	740	658	587	569	669	8,381
1993	738	709	790	730	676	788	814	907	919	985	879	957	9,912
1994	997	970	961	931	831	951	919	910	815	744	688	652	10,368
1995	712	779	865	891	818	901	851	837	734	639	568	592	9,207
1996	674	750	837	861	823	983	898	954	884	756	749	784	9,881
1997	872	936	871	978	884	979	916	877	772	706	655	628	10,142
1998	893	782	867	930	875	962	927	892	779	887	967	730	9,771
1999	773	792	866	918	851	942	895	867	781	681	569		8,253
2000													
Avg 1940-2000	792	821	880	896	831	931	900	899	814	753	716	729	9,951
Avg 1950-1964	919	905	937	943	879	1,003	962	930	862	878	872	891	10,778
Avg 1986-2000	758	783	844	890	796	888	856	859	773	701	667	681	9,411

Estimated BaseFlow Fox Creek at Curtis Ne (9340000)
(values in cr ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951							325	381	418	479	519	502	2,611
1952	533	532	567	582	545	565	527	520	460	405	398	357	5,981
1953	395	435	486	504	487	523	458	456	389	332	305	315	5,008
1954	373	433	497	521	491	538	479	402	313	284	250	277	4,831
1955	335	382	435	454	419	464	434	417	345	284	238	273	4,458
1956	334	360	434	458	449	502	471	430	333	227	158	132	4,306
1957	199	334	428	450	421	479	462	480	410	386	338	321	4,669
1958	356	389	438	458	427	479	450	428	373	341	308	273	4,714
1959													
1960													
1961													
1962													
1963													
1964													
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978	222	282	305	326	316	360	380	385	302	188	102	117	3,295
1979	168	238	288	301	287	340	335	334	297	265	254	296	3,373
1980	299	315	348	385	380	407	394	382	297	177	121	141	3,607
1981	191	250	297	308	286	324	318	332	315	310	294	289	3,466
1982	279	287	318	345	330	360	372	378	330	271	238	237	3,760
1983	259	272	301	320	303	348	338	338	283	213	188	218	3,374
1984	258	277	317	348	345	377	372	380	345	279	240	237	3,785
1985	270	308	335	328	307	381	383	380	324	257	231	256	3,754
1986	287	293	313	317	298	355	344	328	268	206	182	202	3,341
1987	235	252	280	294	268	348	342	330	278	228	198	189	3,268
1988	231	265	308	328	323	358	350	353	311	283	242	254	3,583
1989	284	298	317	317	288	350	347	350	285	185	144	173	3,345
1990	212	234	275	314	306	358	351	350	278	170	128	155	3,132
1991	194	221	256	278	273	333	343	364	293	185	105		2,825
1992													
1993		280	301	331	321	374	371	382	367	374	364	336	3,799
1994	338	324	356	402	384	423	405	411	358	292	242	217	4,151
1995	235	264	297										795
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	282	313	354	376	358	408	391	387	332	271	234	249	3,734
Avg 1960-1984	361	412	469	490	458	507	494	487	380	305	269	307	4,581
Avg 1986-2000	252	270	300	323	311	380	357	358	305	235	200	220	3,143

Estimated Baseflow - Frenchman Creek Gain/Loss Reaches to Palisade, Nb
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950										258	338	462	1,058
1951	735	1,080	1,350	1,433	1,341	1,503	1,437	1,428	1,380	1,491	1,804	1,707	16,488
1952	1,814	1,898	1,580	1,268	1,025	1,007	906	887	672	544	532	981	12,212
1953	1,018	1,295	1,587	1,795	1,843	1,738	1,382	874	513	418	470	678	13,377
1954	1,108	1,644	1,958	1,875	1,408	854	463	185	0	0	0	0	9,572
1955	301	883	1,385	1,857	1,547	1,575	1,270	944	594	328	404	834	11,722
1956	1,223	1,436	1,669	1,777	1,505	1,129	586	48	15	471	813	990	11,603
1957	1,278	1,615	1,875	1,887	1,580	1,432	1,108	902	683	498	545	813	14,195
1958	1,150	1,429	1,681	1,701	1,615	1,932	1,843	1,680	1,390	1,172	1,091	1,142	17,795
1959	1,389	1,956	1,849	1,783	1,504	1,447	1,222	1,124	817	407	437	932	14,575
1960	1,290	1,368	1,606	1,882	1,958	2,235	2,156	2,058	1,553	843	538	708	18,196
1961	1,049	1,447	1,714	1,699	1,512	1,637	1,407	1,109	531	251	1	1,322	13,177
1962	2,018	1,885	1,847	1,777	1,517	1,547	1,326	1,149	782	271	280	821	15,178
1963	1,402	1,578	2,234	2,277	2,033	2,040	1,498	739	200	71	284	534	15,428
1964	1,303	1,549	1,799	1,884	1,838	2,011	1,858	1,037	428	-81	135	1,006	14,829
1965	1,534	1,495	1,552	1,664	1,565	1,791	1,597	1,411	948	337	284	834	14,985
1966	1,283	1,434	1,845	1,752	1,589	1,584	1,107	384	128	404	868	1,498	13,809
1967	1,842	1,778	1,847	1,878	1,598	1,383	880	313	0	0	322	845	12,752
1968	1,403	1,543	1,734	1,823	1,680	1,671	1,179	419	0	0	225	661	12,346
1969	1,075	1,353	1,818	1,735	1,615	1,773	1,670	1,842	1,034	-48	-205	643	13,905
1970	1,329	1,724	1,968	1,942	1,725	1,882	1,275	131	-647	-719	-403	389	10,726
1971	999	1,247	1,509	1,629	1,610	1,962	1,747	1,206	493	-392	596	506	12,080
1972	1,203	1,584	1,777	1,811	1,345	1,245	1,035	812	812	218	322	845	12,807
1973	1,360	1,414	1,584	1,732	1,695	2,027	1,983	1,823	1,370	487	438	1,287	17,300
1974	1,813	1,814	1,937	2,002	1,812	1,941	1,731	1,543	1,188	834	801	1,117	18,534
1975	1,361	1,429	1,577	1,685	1,808	1,881	1,707	1,468	998	344	345	1,012	15,379
1976	1,481	1,530	1,685	1,774	1,685	1,781	1,530	1,248	583	445	481	584	12,813
1977	1,181	1,218	1,294	1,288	1,228	1,523	1,443	1,239	818	290	302	888	12,712
1978	1,314	1,438	1,510	1,378	1,243	1,520	1,548	1,594	1,175	418	225	881	14,023
1979	948	984	1,062	1,083	1,158	1,695	1,708	1,442	938	334	212	821	12,186
1980	1,053	1,387	1,618	1,584	1,548	1,911	1,833	1,571	839	258	-377	584	13,263
1981	1,132	1,217	1,329	1,345	1,228	1,375	1,282	1,139	778	276	280	821	12,180
1982	1,242	1,407	1,561	1,621	1,483	1,842	1,517	1,410	980	348	413	1,212	14,856
1983	1,887	1,589	1,882	1,730	1,589	1,783	1,700	1,680	1,220	434	340	999	18,412
1984	1,421	1,480	1,583	1,679	1,638	1,795	1,759	1,811	1,334	474	383	1,085	18,370
1985	1,528	1,575	1,650	1,792	1,418	1,588	1,508	1,472	915	-91	-158	708	13,724
1986	1,218	1,253	1,485	1,736	1,641	1,887	1,483	1,354	930	331	287	843	14,229
1987	1,256	1,388	1,510	1,479	1,332	1,489	1,399	1,304	778	80	180	573	12,248
1988	1,123	1,380	1,589	1,808	1,544	1,887	1,523	1,456	1,034	368	383	1,065	14,811
1989	1,458	1,484	1,547	1,583	1,449	1,577	1,386	1,189	789	281	290	852	13,928
1990	1,224	1,271	1,442	1,614	1,509	1,800	1,451	1,367	908	-145	-292	437	12,285
1991	980	1,269	1,505	1,567	1,438	1,578	1,519	1,572	995	118	328	456	12,445
1992	1,087	1,401	1,666	1,715	1,804	1,859	1,485	1,271	885	432	487	1,020	14,651
1993	1,386	1,407	1,488	1,488	1,373	1,581	1,802	1,711	1,451	982	810	1,244	18,643
1994	1,504	1,512	1,586	1,579	1,488	1,735	1,806	1,374	1,019	683	596	1,052	15,828
1995	1,317	1,337	1,470										4,123
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	1,284	1,446	1,624	1,673	1,532	1,648	1,443	1,198	770	273	294	853	13,554
Avg 1950-1984	1,220	1,499	1,721	1,785	1,572	1,585	1,304	1,008	678	417	484	881	13,280
Avg 1985-2000	1,257	1,366	1,525	1,566	1,484	1,625	1,502	1,404	965	305	248	838	13,119

Ext Frenchman Creek Gain-Loss Palisade Gage to Culbertson Gage, Ne (gain does not include Stinking Water)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
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1946													
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1948													
1949													
1950										429	838	713	1,780
1951	787	782	732	618	582	828	1,010	1,287	1,514	1,881	1,959	1,808	13,799
1952	1,600	1,189	928	955	498	478	566	934	1,007	803	628	204	9,670
1953	119	361	648	963	997	990	908	951	877	796	835	806	9,451
1954	1,112	1,037	1,104	1,211	1,153	1,298	1,242	1,228	1,148	1,154	1,121	1,052	13,857
1955	1,059	1,004	945	778	593	588	494	434	290	103	0	0	6,285
1956	62	240	387	501	629	918	1,102	1,336	1,392	1,439	1,410	1,306	10,742
1957	1,259	1,124	971	862	582	897	1,043	1,196	1,319	1,578	1,959	1,543	13,880
1958	1,480	1,272	1,225	1,218	1,003	889	864	1,218	1,333	1,377	1,144	854	13,698
1959	398	303	205	70	163	574	712	828	422	150	178	524	4,324
1960	718	876	580	368	375	853	781	851	844	229	0	0	5,802
1961	194	568	730	841	505	483	327	118	0	0	88	257	5,915
1962	410	500	881	848	845	923	802	866	846	866	784	413	9,182
1963	364	584	868	812	548	864	851	582	536	869	768	828	7,494
1964	822	847	880	806	739	787	862	862	578	506	520	619	8,058
1965	896	866	898	832	587	727	714	873	787	1,179	1,318	1,172	9,818
1966	1,253	1,403	1,371	1,002	708	718	860	1,322	1,415	1,277	1,069	814	13,209
1967	824	405	370	487	563	753	952	1,306	1,485	1,869	1,815	1,298	11,517
1968	1,114	994	921	792	718	852	974	1,075	838	298	183	302	8,931
1969	424	422	338	314	74	260	515	901	1,039	1,031	895	643	6,854
1970	547	530	512	458	448	700	851	1,020	884	598	854	810	8,967
1971	883	597	470	423	468	778	1,013	1,320	1,476	1,854	1,443	949	11,362
1972	588	556	840	782	844	1,003	1,106	1,321	1,185	825	658	813	10,350
1973	983	1,113	1,194	1,120	1,024	1,248	1,245	1,237	1,081	853	995	1,189	13,183
1974	1,360	1,206	1,142	1,008	882	861	858	1,066	1,057	1,061	1,004	882	12,831
1975	929	997	1,011	883	787	1,058	1,140	1,224	1,153	1,071	881	803	11,716
1976	543	627	718	747	846	704	714	856	796	830	599	150	7,856
1977	130	382	468	433	473	794	1,118	1,598	1,434	744	382	421	8,404
1978	488	567	595	524	529	1,142	1,257	1,120	858	-67	-420	382	8,178
1979	-171	189	433	641	854	1,004	1,131	1,197	978	581	799	88	8,883
1980	38	111	185	250	364	684	844	862	781	362	74	-80	4,566
1981	-4	367	560	560	556	734	858	1,072	1,128	1,159	975	566	8,537
1982	458	609	655	580	566	842	918	915	784	626	512	463	7,927
1983	509	735	886	938	884	1,042	960	883	734	608	389	130	8,788
1984	0	0	101	310	474	695	858	1,072	1,034	880	885	242	6,235
1985	174	353	436	384	386	581	709	868	770	492	290	82	5,481
1986	80	178	341	536	867	853	1,000	1,052	538	-474	-656	-618	3,510
1987	115	369	656	646	583	857	716	900	628	685	366	289	6,503
1988	217	201	154	52	145	487	629	610	612	722	704	553	5,082
1989	584	723	782	820	582	582	869	952	780	480	316	360	8,001
1990	382	365	415	510	512	582	824	787	641	308	65	30	5,241
1991	0	0	76	233	429	629	1,061	1,320	1,189	748	380	124	6,387
1992	0	0	158	484	662	828	974	1,067	879	707	629	788	7,225
1993	831	709	867	890	736	1,073	1,244	1,443	1,421	1,348	1,229	1,078	12,499
1994	1,104	1,181	1,171	1,011	863	1,014	1,057	1,180	1,078	843	529	172	11,182
1995	137	482	724	900	798	648	596	813	857	821	384	184	7,564
1996	50	148	154	52	72	243	458	765	798	630	487	418	4,281
1997	465	587	814	485	358	342	378	554	472	188	0	0	4,423
1998	54	180	287	422	521	781	878	897	587	-318	-674	-405	3,270
1999	-174	56	175	189	172	242	508	701	512	157	-389		1,705
2000													
Avg 1940-2000	525	576	625	608	595	771	856	991	915	725	568	513	8,190
Avg 1950-1984	746	733	749	717	662	783	909	884	858	812	784	728	8,901
Avg 1986-2000	259	367	456	487	506	982	784	940	803	457	246	234	6,208

Estimated Baseflow - Frenchman Creek at Culbertson, Ne (6835500)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	1,708	3,010	4,837	7,237	8,122	9,236	7,828	4,410	2,402	2,258	2,507	3,149	56,800
1941	4,980	7,498	9,466	10,121	9,362	10,134	8,846	7,307	5,129	3,126	3,038	5,011	84,078
1942	8,884	7,821	9,098	9,891	9,217	9,983	9,184	8,643	8,538	3,700	3,884	8,650	91,264
1943	8,905	9,311	9,965	9,922	8,802	9,407	7,370	4,234	2,041	1,371	1,341	2,000	74,667
1944	3,911	8,888	8,844	9,075	8,778	9,572	9,050	8,879	8,934	4,724	3,224	2,889	81,989
1945	4,182	7,285	9,253	9,315	8,324	8,929	7,197	4,624	2,815	2,404	3,144	5,018	72,500
1946	8,893	7,402	8,502	9,262	8,581	9,519	8,250	8,475	4,449	2,884	3,357	5,948	81,404
1947	8,168	9,086	10,127	10,342	9,381	10,274	9,272	8,268	6,385	4,477	3,332	3,138	92,248
1948	4,884	7,400	9,531	11,215	10,810	10,758	8,294	4,869	2,904	1,874	1,815	1,789	75,822
1949	4,072	8,283	10,628	10,837	9,948	11,185	10,755	10,833	8,280	4,105	1,848	1,951	92,514
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Avg 1940-2000	5,417	7,359	9,044	9,722	9,144	9,900	8,583	6,834	4,747	3,092	2,709	3,738	80,288

Estimated Baseflow - Frenchman Creek near Champion, Ne (8830500)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	848	868	973	1,077	1,033	1,045	904	765					7,514
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Estimated Baseflow - Frenchman Creek near Hamlet, Nb. (6933500)
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	4,356	4,325	4,506	4,466	4,158	4,446	4,196	4,110	3,991	4,403	4,650	4,896	52,306
1941	5,115	5,260	5,722	5,971	5,473	5,970	5,822	5,577	5,042	4,897	4,484	4,480	63,424
1942	4,815	5,185	5,896	6,541	6,090	6,453	5,983	5,974	5,293	4,849	4,685	5,454	67,128
1943	6,351	6,804	6,918	6,813	5,841	5,784	5,214	5,080	4,715	4,774	4,680	4,446	68,820
1944	4,788	5,081	5,741	6,233	6,048	6,419	6,013	5,832	5,173	4,743	4,471	4,413	64,954
1945	4,981	5,500	6,171	6,420	5,782	6,011	5,400	5,084	4,540	4,381	4,282	4,268	62,780
1946	4,850	4,842	5,526	6,233	5,830	6,141	5,827	5,485	4,870	4,442	4,716	5,712	64,072
1947	6,508	6,296	6,467	6,387	5,669	6,126	5,801	5,660	5,358	4,910	4,802	5,081	69,292
1948	5,853	5,812	6,361	6,724	6,278	6,278	5,623	5,319	4,808	4,775	4,722	4,884	67,012
1949	5,284	5,828	6,571	6,805	5,987	6,573	6,316	6,468	5,902	5,385	5,382	5,937	72,321
1950	6,495	6,241	6,510	6,868	6,018	6,409	5,838	5,528	4,883	4,588	4,788	5,441	69,401
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Avg 1940-1950	5,370	5,553	6,035	6,262	5,721	6,055	5,604	5,487	4,981	4,704	4,695	4,963	65,412

Estimated Baseflow - Franchthan Creek near Imperial, Ne (6931500)
(values in ac ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941				4,078	3,592	4,121	3,875	3,582	3,231	3,282	3,273	3,269	32,292
1942	3,537	3,631	4,156	4,785	4,398	4,411	3,989	4,036	3,720	3,537	3,561	3,782	47,513
1943	4,249	4,428	4,732	4,713	4,059	4,036	3,815	3,624	3,437	3,521	3,404	3,094	48,913
1944	3,237	3,415	3,921	4,425	4,269	4,302	3,877	3,677	3,306	3,228	3,116	2,989	43,782
1945	3,228	3,419	3,813	4,058	3,999	3,780	3,318	3,075	2,831	2,999	3,171	3,330	40,879
1946	3,556	3,367	3,999	4,139	3,839	3,994	3,959	3,812	3,233	2,956	3,128	3,782	42,976
1947	4,388	4,473	4,999	4,522	3,992	3,926	3,846	3,841	3,803	3,395	3,428	3,722	47,481
1948	4,102	4,056	4,414	4,779	4,402	4,143	3,807	3,486	3,253	3,371	3,509	3,857	46,779
1949	4,183	4,514	4,997	5,065	4,406	4,367	4,043	4,366	4,057	3,820	3,956	4,199	51,428
1950	4,636	4,388	4,541	4,999	4,131	4,247	3,723	3,377	3,099	3,257	3,586	4,034	47,648
1951	4,481	4,400	4,810	4,884	4,091	4,108	3,927	4,433	4,491	4,830	4,739	4,956	53,474
1952	5,051	4,589	4,955	5,398	5,099	4,953	4,456	4,364	4,092	3,924	3,709	3,387	53,969
1953	3,999	4,064	4,373	4,109	3,595	3,999	3,829	3,846	3,817	3,833	3,529	3,317	45,597
1954	3,556	3,795	4,130	4,178	3,623	3,599	3,425	3,884	3,906	3,978	3,780	3,328	45,179
1955	3,555	4,012	4,563	4,806	4,183	3,905	3,414	3,537	3,484	3,723	3,991	3,381	46,235
1956	3,669	4,150	4,593	4,593	4,011	3,633	3,338	3,792	3,737	3,827	3,487	3,339	45,966
1957	3,736	4,217	4,639	4,559	4,005	4,246	3,950	3,949	3,880	3,871	3,583	3,441	47,684
1958	3,856	4,361	4,815	4,802	4,247	4,486	4,152	4,094	3,758	3,959	3,524	3,374	49,129
1959	3,754	4,195	4,685	4,799	4,216	4,253	3,791	3,867	3,325	3,183	3,078	3,095	46,041
1960	3,582	4,104	4,897	4,949	4,645	4,723	4,203	3,818	3,278	3,081	2,899	2,823	48,781
1961	3,263	3,818	4,387	4,584	4,151	4,399	4,020	3,899	3,580	3,805	3,501	3,260	46,414
1962	3,890	4,247	4,998	4,481	3,774	3,730	3,449	3,727	3,892	3,821	3,874	3,848	46,973
1963	4,167	4,306	4,893	4,899	4,292	4,199	3,899	4,302	4,157	3,978	3,815	3,996	50,404
1964	3,917	3,972	4,290	4,478	4,263	4,521	4,281	4,197	3,808	3,804	3,357	3,103	47,789
1965	3,337	3,837	4,105	4,378	4,031	4,340	4,102	4,185	3,957	4,012	4,037	4,036	48,139
1966	4,214	4,033	4,189	4,281	3,721	3,881	3,402	3,730	3,875	4,342	4,409	4,050	47,908
1967	4,098	4,019	4,300	4,548	3,936	3,874	3,531	4,377	4,597	4,732	4,547	4,042	50,394
1968	4,080	4,098	4,281	4,298	3,878	3,799	3,572	3,851	3,844	3,408	3,318	3,402	45,577
1969	3,884	3,841	3,924	4,154	3,646	3,521	3,292	3,739	3,870	3,531	3,403	3,311	43,497
1970	3,487	3,485	3,815	4,138	3,786	3,948	3,878	3,781	3,454	3,148	2,927	2,832	42,477
1971	3,054	3,205	3,592	3,800	3,859	4,096	3,681	3,973	3,841	3,359	3,240	3,317	42,858
1972	3,585	3,592	3,705	3,561	3,206	3,308	3,300	3,787	3,578	3,151	2,938	2,980	40,880
1973	3,232	3,256	3,431	3,431	3,041	3,225	3,184	3,525	3,321	2,956	2,780	2,778	38,118
1974	3,080	3,223	3,486	3,523	3,080	3,120	2,984	3,336	3,137	2,785	2,597	2,673	36,953
1975	2,898	2,908	3,130	3,284	2,911	2,915	2,797	3,169	3,046	2,737	2,545	2,511	34,871
1976	2,697	2,781	2,979	3,074	2,770	2,614	2,475	2,828	2,716	2,482	2,227	2,048	31,651
1977	2,102	2,318	2,314	2,483	2,360	2,705	2,683	2,809	2,580	2,291	2,080	2,051	28,525
1978	2,203	2,257	2,443	2,535	2,294	2,448	2,391	2,625	2,402	2,011	1,700	1,517	26,827
1979	1,585	1,843	1,791	1,847	1,709	1,979	1,964	2,188	2,041	1,734	1,528	1,481	21,412
1980	1,579	1,883	1,829	1,847	1,737	1,857	1,848	2,020	1,881	1,587	1,438	1,607	20,702
1981	1,497	1,514	1,802	1,808	1,568	2,010	2,189	2,417	2,282	2,042	1,833	1,691	22,231
1982	1,741	1,758	1,875	1,912	1,721	1,850	1,959	2,550	2,521	2,175	1,913	1,780	23,789
1983	1,842	1,863	2,078	2,301	2,160	2,338	2,214	2,251	2,014	1,785	1,588	1,516	23,927
1984	1,821	1,896	1,924	2,139	2,031	2,002	1,851	1,912	1,773	1,663	1,580	1,541	21,734
1985	1,644	1,880	1,910	2,171	1,982	1,952	1,824	2,020	1,853	1,548	1,398	1,442	21,422
1986	1,569	1,581	1,726	1,849	1,735	1,939	1,874	1,908	1,721	1,535	1,417	1,389	20,243
1987	1,543	1,687	1,883	1,963	1,842	2,117	2,024	1,950	1,699	1,399	1,265	1,292	20,831
1988	1,458	1,669	1,881	1,895	1,817	2,007	1,994	2,100	1,824	1,387	1,199	1,306	20,547
1989	1,478	1,527	1,834	1,843	1,508	1,720	1,656	1,837	1,434	1,236	1,120	1,111	17,703
1990	1,232	1,329	1,480	1,582	1,479	1,643	1,574	1,580	1,346	1,043	856	820	15,966
1991	903	883	1,166	1,326	1,337	1,837	1,645	1,654	1,383	1,006	792	775	14,618
1992	875	864	1,137	1,239	1,204	1,278	1,181	1,110	974	811	847	783	12,532
1993	902	1,064	1,303	1,518	1,479	1,656	1,806	1,853	1,555	1,521	1,429	1,282	18,968
1994	1,365	1,503	1,678	1,735	1,585	1,733	1,550	1,350	1,105	982	884	828	18,299
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1941-1994	2,973	3,102	3,388	3,531	3,185	3,279	3,068	3,189	2,995	2,845	2,745	2,705	36,821
Avg 1950-1964	3,905	4,182	4,578	4,885	4,152	4,201	3,856	3,925	3,704	3,689	3,912	3,488	47,952
Avg 1995-1964	1,261	1,371	1,542	1,639	1,554	1,748	1,678	1,960	1,445	1,225	1,080	1,099	17,278

Estimated Baseflow - Medicine Creek above Harry Strunk Lake No (6841000)
(values in ac.-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950					3,884	4,286	3,861	3,353	2,875	2,686	2,843	2,805	26,799
1951	3,058	3,219	3,349	3,115	2,775	3,241	3,375	3,813	3,828	3,886	3,780	3,451	40,872
1952	3,577	3,676	3,867	3,870	3,651	4,004	3,770	3,565	3,073	2,754	2,461	2,239	40,528
1953	2,515	2,978	3,453	3,837	3,348	3,952	3,407	3,309	2,808	2,281	1,918	1,777	35,081
1954	2,214	2,867	3,515	3,549	3,211	3,530	3,278	3,113	2,468	1,732	1,514	1,902	33,013
1955	2,442	2,848	3,299	3,308	3,238	3,517	3,218	2,999	2,330	1,522	1,316	1,782	32,018
1956	2,209	2,334	2,571	2,856	2,780	3,364	3,233	2,763	2,206	1,902	1,728	1,715	29,492
1957	1,998	2,308	2,890	2,911	2,847	3,429	3,499	3,892	3,297	2,721	2,408	2,423	34,209
1958	2,794	3,180	3,527	3,508	3,313	4,038	3,882	3,538	3,014	2,745	2,552	2,469	38,558
1959	2,813	3,237	3,517	3,314	3,046	3,730	3,637	3,410	2,749	2,028	1,842	2,319	35,662
1960	2,882	3,206	3,548	3,588	3,503	4,102	3,898	3,783	3,134	2,445	2,078	2,106	38,362
1961	2,477	2,891	3,159	2,977	2,836	3,666	3,778	3,660	3,036	2,706	1,855	2,057	34,892
1962	2,458	2,782	2,925	2,856	2,475	3,232	3,318	3,268	3,253	3,661	3,818	3,627	37,469
1963	3,735	3,956	3,709	3,522	3,181	3,734	3,543	3,284	2,836	2,028	1,955	2,472	37,434
1964	2,966	3,144	3,471	3,858	3,607	4,080	3,797	3,342	2,521	1,895	1,499	2,004	35,803
1965	2,587	2,869	3,187	3,185	2,881	3,296	3,152	3,149	2,734	2,263	2,287	2,841	34,381
1966	3,385	3,453	3,681	3,703	3,379	3,749	3,508	3,196	2,716	2,462	2,457	2,723	38,441
1967	3,123	3,275	3,522	3,531	3,242	3,706	3,624	3,892	3,371	3,102	2,581	2,746	39,815
1968	3,025	3,338	3,709	3,802	3,583	3,822	3,633	3,631	2,987	2,079	1,718	1,998	37,322
1969	2,471	2,873	3,314	3,505	3,333	3,881	3,815	3,213	2,782	2,740	2,759	2,846	37,358
1970	3,222	3,481	3,783	3,774	3,485	4,052	3,802	3,449	2,842	1,746	1,484	1,838	36,854
1971	2,529	2,971	3,452	3,673	3,482	4,003	3,835	3,711	3,048	2,250	1,892	2,350	37,296
1972	2,858	3,177	3,528	3,590	3,412	3,703	3,504	3,388	2,813	2,154	1,831	2,208	36,267
1973	2,564	2,886	3,113	3,566	3,432	3,907	3,881	3,559	3,187	2,953	2,667	2,983	38,588
1974	3,298	3,583	3,815	3,852	3,356	3,814	3,542	3,224	2,503	1,729	1,516	1,935	35,564
1975	2,411	2,860	2,952	3,046	2,881	3,436	3,287	2,977	2,437	1,998	1,793	1,875	31,756
1976	2,163	2,384	2,902	3,462	3,456	3,579	3,282	3,064	2,568	2,131	1,981	2,161	33,126
1977	2,432	2,484	2,696	2,798	2,746	3,481	3,483	3,408	2,848	2,179	1,910	2,110	32,595
1978	2,387	2,474	2,841	2,847	2,550	3,201	3,233	3,202	2,568	1,819	1,187	1,385	29,104
1979	1,804	2,245	2,536	2,448	2,386	3,102	3,135	2,978	2,638	2,487	2,317	2,156	30,211
1980	2,407	2,789	3,112	3,152	3,000	3,281	3,100	2,957	2,278	1,354	1,025	1,378	29,812
1981	1,885	2,339	2,708	2,746	2,598	3,117	3,032	2,893	2,615	2,567	2,419	2,190	31,107
1982	2,402	2,756	3,015	2,992	2,881	3,208	3,291	3,517	3,107	2,436	2,153	2,328	33,783
1983	2,704	2,953	3,298	3,443	3,206	3,818	3,458	3,407	2,806	2,014	1,858	1,816	34,381
1984	2,198	2,532	2,847	3,193	3,106	3,320	3,161	3,153	2,740	2,291	2,018	1,996	32,847
1985	2,288	2,598	2,871	2,998	2,787	3,190	3,058	2,978	2,580	2,206	2,093	2,273	31,968
1986	2,483	2,411	2,882	3,087	2,949	3,265	3,085	3,025	2,451	1,678	1,398	1,883	30,178
1987	2,107	2,423	2,818	3,052	2,871	3,191	2,910	2,606	2,078	1,813	1,434	1,584	28,889
1988	2,011	2,478	2,834	3,128	3,024	3,242	2,999	2,757	2,263	1,889	1,782	2,002	30,519
1989	2,359	2,598	2,905	2,991	2,788	3,083	2,906	2,494	1,994	1,598	1,557	1,906	28,990
1990	2,323	2,525	2,832	2,992	2,788	3,108	2,928	2,827	2,264	1,531	1,205	1,360	28,877
1991	1,801	2,323	2,775	2,920	2,725	3,068	2,949	2,952	2,438	1,718	1,411	1,588	28,870
1992	2,007	2,430	2,818	2,922	2,784	2,978	2,724	2,477	2,159	2,066	2,044	2,043	29,470
1993	2,270	2,441	2,772	3,024	2,965	3,582	3,497	3,401	3,232	3,444	3,503	3,399	37,509
1994	3,584	3,830	3,856	3,908	3,537	3,873	3,547	3,278	2,735	2,303	2,153	2,328	38,741
1995	2,888	2,900	3,209	3,323	3,075	3,454	3,314	3,308	2,737	1,949	1,888	1,973	33,598
1996	2,382	2,611	2,832	2,777	2,603	3,159	3,104	2,995	2,784	2,798	2,847	2,913	33,875
1997	3,118	3,069	3,078	2,832	2,643	3,408	3,424	3,258	2,818	2,485	2,462	2,778	35,371
1998	3,152	3,202	3,434	3,529	3,245	3,823	3,401	3,250	2,707	2,136	1,773	1,883	35,135
1999	2,001	2,487	2,880	3,261	3,064	3,373	3,157	3,050	2,516	1,887	1,662	1,902	31,351
2000													
Avg 1950-1999	2,583	2,850	3,167	3,245	3,076	3,530	3,378	3,227	2,727	2,247	2,059	2,211	34,981
Avg 1950-1964	2,725	3,029	3,331	3,520	3,179	3,711	3,573	3,395	2,883	2,433	2,237	2,343	36,332
Avg 1965-1999	2,450	2,678	2,983	3,123	2,958	3,353	3,191	3,077	2,592	2,080	1,921	2,087	33,198

(1) Appendix J3-2(b) Groundwater Model Sensitivity, pg. 10, 11/16/2002

Estimated Baseflow - Medicine Creek at Maywood, Ne. (6839000)
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951								1,003	1,291	1,282	1,253	1,209	8,038
1952	1,315	1,403	1,557	1,837	1,556	1,838	1,485	1,283	1,014	806	756	874	15,308
1953	1,084	1,186	1,410	1,579	1,478	1,572	1,401	1,291	1,008	781	711	818	14,278
1954	1,082	1,387	1,815	1,825	1,445	1,535	1,380	1,301	1,084	880	800	837	14,991
1955	1,029	1,255	1,483	1,588	1,459	1,587	1,382	1,224	975	778	785	952	14,447
1956	1,152	1,228	1,371	1,480	1,416	1,529	1,341	1,087	819	758	725	797	13,640
1957	1,024	1,259	1,488	1,488	1,392	1,858	1,812	1,548	1,310	1,071	981	1,058	15,929
1958	1,256	1,409	1,578	1,824	1,502	1,896	1,548	1,357	1,126	1,026	975	968	16,065
1959													
1960													
1961													
1962													
1963													
1964													
1965													
1966													
1967													
1968													
1969													
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1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1951-1958	1,132	1,310	1,500	1,572	1,464	1,596	1,448	1,258	1,078	921	871	942	13,879
Avg 1950-1954	1,132	1,310	1,500	1,572	1,464	1,596	1,448	1,258	1,078	921	871	942	13,839

Estimated Baseflow - Mitchel Creek above Harry Strunk Lake, Nebr
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950								0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0	0	0	0	0
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
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1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	0	0	0	0	0	0	0	0	0	0	0	0	0
Avg 1980-1984	0	0	0	0	0	0	0	0	0	0	0	0	0

Estimated Baseflow - Muddy Creek at Arapahoe, Nb (6844000)
(values in cfs)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951				201	228	333	378	422	418	479	389	330	3,120
1952	354	415	486	526	500	510	435	350	235	125	70	81	4,088
1953	143	244	339	403	382	384	351	331	235	93	17	20	2,953
1954	81	194	284	270	257	310	308	305	229	109	56	88	2,474
1955	158	252	304	288	253	282	255	224	153	84	54	130	2,416
1956	186	201	236	270	294	389	358	310	227	139	84	71	2,744
1957	100	181	209	228	240	328	382	408	386	345	287	219	3,297
1958	217	254	306	348	344	406	409	451	411	404	348	248	4,127
1959	235	277	297	287	281	371	389	373	310	241	200	195	3,415
1960	229	272	301	289	275	318	306	294	264	255	246	230	3,281
1961	268	300	342	393	342	389	384	401	396	329	298	286	4,048
1962	306	312	340	358	340	392	399	407	394	403	402	392	4,435
1963	418	427	440	414	385	411	395	381	345	297	288	258	4,459
1964	290	327	378	413	408	453	421	381	312	256	217	193	4,053
1965	221	274	325	347	337	405	408	422	405	410	408	400	4,383
1966	420	413	467	512	495	564	530	494	441	434	429	427	5,616
1967	462	475	525	565	518	548	504	500	467	466	458	439	5,927
1968	475	508	564	582	563	591	533	477	401	384	333	313	5,736
1969	338	389	426	471	457	530	525	541	520	533	531	515	5,756
1970	534	516	548	572	529	588	549	520	455	416	375	332	5,941
1971	384	428	500	544	505	542	509	510	461	424	384	347	5,518
1972	378	431	484	494	460	475	443	439	410	415	378	303	5,111
1973													
1974													
1975													
1976													
1977													
1978	385	395	403	346	295	313	295	290	267	252	255	276	3,767
1979	320	358	392	386	350	388	387	400	390	409	386	549	4,533
1980	395	395	421	403	373	410	398	397	342	274	243	256	4,279
1981	302	344	385	359	354	395	382	392	390	396	385	343	4,446
1982	348	351	369	385	332	381	383	413	407	417	409	364	4,558
1983	364	390	384	422	396	444	430	442	426	436	428	386	4,949
1984	385	343	353	380	387	457	478	517	494	469	410	324	4,998
1985	320	357	398	410	391	468	453	428	384	384	395	386	4,784
1986	418	421	452	468	434	480	467	456	418	404	391	360	5,199
1987	389	397	423	437	403	451	438	449	413	382	351	324	4,867
1988	358	401	451	486	447	480	452	408	387	383	384	370	4,975
1989	383	378	392	385	381	408	382	395	333	333	333	333	4,391
1990	355	358	388	418	388	429	398	377	332	309	290	278	4,315
1991	305	340	388	418	381	401	381	400	362	312	278	288	4,252
1992	303	348	380	394	372	402	381	373	331	289	284	290	4,167
1993	312	312	387	448	454	525	502	481	448	467	474	486	5,256
1994	498	507	541	581	515	602	577	549	503	512	478	397	6,230
1995	407	453											860
1996													
1997													
1998					490	543	488	458	401	395	347	294	3,416
1999	306	347	392	408	383	441	429	428	395	384	368	349	4,629
2000													
Avg 1940-2000	325	355	394	408	387	438	421	413	372	346	320	300	4,375
Avg 1950-1964	230	280	328	351	321	378	367	359	308	249	210	197	3,481
Avg 1996-2000	368	387	418	440	421	471	448	431	391	379	361	341	4,778

Est Baseflow - Red Willow Creek - Gain-Loss Below Hugh Butler Reservoir to Red Willow (No
Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941		115	117	117	112	139	115	57	44	88	129	180	1,192
1942	200	223	247	251	219	221	192	177	165	180	204	236	2,515
1943	286	280	248	202	187	201	190	168	142	131	128	132	2,235
1944	107	35	28	87	107	102	110	132	133	128	156	217	1,346
1945	249	223	198	146	129	186	194	182	178	208	226	226	2,348
1946	246	250	251	223	191	218	216	226	227	250	296	361	2,955
1947	406	381	364	314	255	287	243	235					2,484
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958													
1959													
1960													
1961		183	192	218	215	247	241	243	177	83	14	40	1,814
1962	104	196	264	286	272	301	287	268	277	292	301	305	3,173
1963	321	314	329	335	295	302	250	194	118	42	74	217	2,792
1964	318	336	361	358	330	343	268	148	56	21	44	129	2,713
1965	195	221	255	273	281	301	300	317	270	193	181	240	3,007
1966	269	323	346	337	308	354	302	204	109	39	67	195	2,881
1967	277	280	305	327	305	338	289	216	127	45	0	0	2,509
1968	85	191	245	205	186	230	207	148	92	29	0	0	1,565
1969	26	75	139	209	248	336	329	278	181	85	80	178	2,123
1970	272	313	334	300	247	251	137	-64	-189	-181	-130	-18	1,291
1971	78	151	210	238	247	318	253	86	-37	105	-58	107	1,488
1972	233	287	318	262	244	319	328	310	218	77	51	151	2,807
1973	233	273	301	286	267	323	278	175	85	31	36	107	2,396
1974	184	249	320	373	364	409	264	-19	-174	185	102	101	1,775
1975	242	300	335	317	285	334	221	-14	178	273	243	-83	1,245
1976	48	154	235	275	288	336	181	158	356	-429	-321	-34	220
1977	138	187	204	187	184	255	240	150	38	-83	-111	-36	1,312
1978	0	0	36	109	122	107	-21	292	-413	-510	-365	70	1,295
1979	100	111	117	105	127	233	285	258	181	85	18	53	1,831
1980	112	182	238	259	272	334	293	189	15	-225	-258	-68	1,342
1981	56	117	156	190	199	257	265	288	218	142	138	211	2,225
1982	255	241	287	310	299	328	294	258	129	-79	-123	-5	2,193
1983	128	208	269	354	333	329	279	248	188	80	33	86	2,528
1984	158	187	242	273	284	334	328	314	154	-139	-189	25	1,982
1985	159	202	226	211	201	298	251	198	104	15	-15	113	1,802
1986	196	218	232	217	203	256	254	231	136	16	-41	73	1,995
1987	173	242	298	312	276	275	222	188	87	69	70	72	1,983
1988	181	240	298	292	281	313	301	293	209	74	42	124	2,657
1989	189	215	246	258	245	278	285	256	181	85	12	38	2,243
1990	95	181	244	288	247	288	237	205	58	201	-254	79	1,298
1991	47	126	184	209	209	253	233	192	36	-170	200	18	1,121
1992	112	182	230	237	226	244	211	180	95	34	35	132	1,868
1993	163	199	214	186	180	257	273	298	209	127	80	20	2,154
1994													
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	174	208	242	248	235	274	240	173	84	-8	-5	93	1,948
Avg 1950-1964	247	252	288	300	278	296	262	218	158	104	106	172	2,823
Avg 1988-2000	145	201	242	247	233	268	248	221	126	20	-52	41	1,902

Estimated Baseflow - Red Willow Creek above Hugh Butler Lake, Ne (6837300)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958													
1959													
1960													
1961	777	864	978	1,031	947	1,027	950	911	787	623	639	823	10,537
1962	956	919	941	926	848	975	956	979	942	973	1,027	1,088	11,545
1963	1,304	1,484	1,818	1,548	1,353	1,483	1,315	1,179	884	584	530	757	14,028
1964	946	968	1,065	1,140	1,114	1,239	1,172	1,097	843	522	453	884	11,282
1965	863	950	1,068	1,121	1,051	1,186	1,157	1,151	979	788	719	852	11,877
1966	1,092	1,310	1,489	1,495	1,379	1,597	1,406	1,085	856	869	870	860	14,302
1967	968	1,078	1,248	1,378	1,341	1,579	1,541	1,513	1,354	1,248	1,115	975	15,334
1968	1,037	1,170	1,330	1,398	1,353	1,473	1,351	1,208	998	898	846	847	13,974
1969	1,089	1,180	1,278	1,334	1,265	1,484	1,382	1,246	1,044	833	818	1,003	14,153
1970	1,235	1,468	1,682	1,726	1,611	1,857	1,845	1,282	895	633	584	713	15,312
1971	913	1,058	1,202	1,237	1,164	1,362	1,344	1,356	1,139	824	866	792	13,093
1972	918	985	1,064	1,180	1,180	1,331	1,296	1,280	1,087	890	788	811	12,821
1973	880	913	1,020	1,124	1,123	1,388	1,377	1,328	1,081	780	749	1,013	12,787
1974	1,286	1,390	1,519	1,606	1,514	1,724	1,584	1,433	1,121	818	697	784	15,436
1975	921	996	1,101	1,138	1,051	1,184	1,135	1,126	988	792	758	843	12,053
1976	1,029	1,089	1,181	1,261	1,254	1,422	1,333	1,192	939	709	647	775	12,812
1977	931	1,004	1,133	1,218	1,189	1,398	1,312	1,255	1,052	848	785	830	12,980
1978	929	946	1,007	1,018	922	1,018	904	768	818	648	523	556	8,732
1979	879	816	955	1,015	987	1,128	1,108	1,123	964	818	722	715	11,026
1980	808	884	959	1,029	999	1,074	994	905	705	483	454	807	9,947
1981	811	972	1,122	1,161	1,107	1,321	1,250	1,121	912	756	683	742	11,946
1982	872	977	1,099	1,140	1,061	1,277	1,251	1,234	1,078	819	805	1,048	12,661
1983	1,210	1,240	1,364	1,459	1,379	1,586	1,452	1,318	1,009	665	532	642	13,837
1984	784	894	1,030	1,115	1,140	1,346	1,315	1,241	998	661	548	817	11,709
1985	783	955	1,116	1,170	1,096	1,256	1,162	1,036	821	631	677	970	11,677
1986	1,169	1,133	1,205	1,278	1,205	1,383	1,256	1,081	807	618	598	729	12,427
1987	920	1,051	1,214	1,303	1,257	1,456	1,390	1,127	832	606	512	574	12,242
1988	781	1,044	1,240	1,281	1,208	1,337	1,231	1,067	841	615	595	799	12,040
1989	990	1,053	1,144	1,157	1,052	1,187	1,037	868	685	531	530	672	10,887
1990	832	811	1,042	1,134	1,108	1,314	1,184	953	853	486	407	530	10,978
1991	700	837	988	1,071	1,035	1,217	1,131	985	734	483	403	519	10,104
1992	739	861	1,177	1,224	1,178	1,274	1,197	1,141	1,004	927	884	914	12,847
1993	1,024	1,096	1,209	1,254	1,197	1,428	1,401	1,371	1,238	1,186	1,118	1,108	14,807
1994	1,240	1,367	1,524	1,573	1,453	1,631	1,423	1,108	814	695	675	795	14,298
1995	853	1,152	1,320	1,379	1,288	1,480	1,377	1,307	1,070	812	700	782	13,821
1996	940	1,123	1,282	1,304	1,282	1,423	1,349	1,248	1,103	1,072	1,070	1,098	14,274
1997	1,200	1,225	1,322	1,368	1,282	1,475	1,336	1,117	856	882	853	758	13,286
1998	901	877	1,074	1,092	1,011	1,159	1,070	949	751	589	504	523	10,587
1999	817	710	890	1,060	1,069	1,233	1,116	953	725	540	508	643	10,114
2000	796	880	994	1,052	1,018	1,100	955	735	534	444	374	336	8,218
Avg 1961-2000	947	1,050	1,182	1,238	1,176	1,343	1,254	1,135	918	736	684	781	12,443
Avg 1950-1964	998	1,064	1,155	1,182	1,065	1,178	1,099	1,041	861	676	662	835	11,797
Avg 1966-2000	923	1,036	1,175	1,238	1,178	1,339	1,229	1,068	844	683	631	717	12,060

For Streamflow Rock Creek Reservoir Classic Loss Below Hanson to Chalk Rock, No (gain includes inflow from Turkey Creek Thompson and Elm Creek) (values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953			1,923	2,021	2,078	2,823	2,500	2,086	812	1,171	1,879	547	10,577
1954	907	2,663	3,823	4,100	3,756	3,902	3,444	3,104	2,043	525	187	1,154	29,588
1955	2,046	2,656	3,063	2,990	2,783	3,400	2,796	1,488	551	189	974	2,858	25,782
1956	3,927	3,734	3,825	3,825	3,558	3,757	2,470	72	1,513	-2,264	2,075	913	18,402
1957	338	1,711	2,814	2,857	2,816	3,421	3,248	2,958	2,143	1,375	892	1,073	25,454
1958	1,903	3,288	4,253	4,453	3,829	3,548	2,846	2,452	1,867	1,370	1,586	2,537	33,931
1959	3,334	3,563	4,078	4,429	3,979	3,953	2,735	973	-304	975	120	2,249	27,821
1960	3,818	4,193	4,828	4,894	4,343	4,456	3,853	3,186	2,524	2,273	2,529	3,299	43,793
1961	4,041	4,277	4,586	4,571	4,220	4,824	4,578	4,031	3,391	3,186	3,338	3,915	48,043
1962	4,810	4,569	5,297	5,405	5,050	5,877	5,357	4,490	3,777	3,823	4,306	5,200	58,080
1963	6,094	6,248	6,556	6,381	5,571	5,900	5,079	4,181	3,287	2,880	2,852	3,277	58,286
1964	3,949	4,384	4,981	5,237	5,044	5,418	4,788	3,988	3,140	2,814	2,853	3,964	50,357
1965	4,184	4,032	4,192	4,268	4,059	4,809	4,850	5,075	4,710	4,474	4,393	4,496	53,743
1966	4,995	5,263	5,752	5,937	5,464	6,086	5,523	4,667	4,071	3,742	3,556	3,537	58,787
1967	3,784	3,841	4,091	4,158	3,755	4,077	3,553	2,908	2,500	2,740	3,287	4,125	42,840
1968	4,771	4,853	4,988	4,945	4,660	4,980	4,148	2,868	2,043	2,080	2,383	2,834	46,338
1969	3,723	4,323	4,920	5,073	4,697	5,305	4,707	3,815	3,075	2,893	3,149	3,544	49,323
1970	4,036	4,128	4,518	4,795	4,519	5,148	4,511	3,471	2,171	874	1,581	3,977	43,810
1971	5,466	5,417	5,845	5,806	5,184	5,997	5,814	5,089	4,382	4,196	4,182	4,304	61,027
1972	4,731	4,849	5,228	5,378	5,187	5,738	5,558	5,537	5,137	5,053	4,808	4,426	61,825
1973	5,061	6,143	7,103	7,333	6,836	7,829	7,037	5,805	4,697	4,489	4,787	5,856	72,778
1974	6,641	6,936	7,371	7,242	6,295	6,378	5,301	4,208	2,841	1,961	2,154	3,515	60,924
1975	4,884	5,064	5,883	5,995	5,591	6,375	5,870	5,205	4,315	3,841	3,881	3,825	60,029
1976	4,256	4,422	5,084	5,619	5,684	6,487	6,010	5,408	4,822	4,334	4,473	5,061	61,856
1977	5,648	5,535	5,808	5,910	5,430	6,117	5,530	4,748	4,164	4,429	4,758	5,127	63,205
1978	5,674	5,883	6,050	6,179	5,686	6,447	5,878	5,131	4,290	3,878	3,724	3,830	62,450
1979	4,133	4,109	4,407	4,619	4,381	5,118	4,678	4,887	4,318	3,850	3,824	4,281	52,805
1980	4,917	5,131	5,560	5,689	5,466	6,086	5,384	4,177	2,915	2,083	1,954	2,567	51,971
1981	3,241	3,598	4,063	4,275	4,133	4,891	4,840	4,838	4,492	4,406	4,612	5,106	52,488
1982	6,826	6,054	6,525	6,630	6,047	6,720	6,358	6,229	5,775	5,787	6,017	6,480	74,428
1983	6,830	6,548	6,730	6,625	6,170	6,735	6,335	6,257	5,681	5,952	6,251	6,745	77,339
1984	7,463	7,472	7,880	7,939	7,441	7,853	7,278	6,881	5,807	4,853	4,474	4,556	79,580
1985	5,147	5,812	6,343	6,783	6,568	7,843	7,510	6,833	6,145	6,037	6,243	6,770	77,834
1986	7,466	7,398	7,752	7,785	6,937	7,413	6,031	4,052	2,832	2,963	3,170	3,436	67,235
1987	4,284	5,208	6,041	6,250	5,830	6,987	6,436	6,383	5,944	5,953	5,921	5,924	70,824
1988	6,332	6,341	6,858	6,647	6,253	6,778	6,193	5,505	4,589	4,124	3,983	4,214	67,818
1989	4,704	4,998	5,212	5,248	4,843	4,874	4,245	3,887	3,007	2,723	2,938	3,995	46,792
1990	4,327	4,402	4,756	4,953	4,734	5,650	5,354	5,458	4,626	3,981	2,318	756	51,196
1991	0	0	97	297	380	467	257	-211	-479	-845	-454	148	381
1992	0	0	0	0	157	528	1,415	3,024	3,780	4,070	4,150	4,017	21,150
1993	4,181	4,048	4,189	4,212	3,891	4,505	4,361	4,285	4,009	4,087	4,247	4,482	50,498
1994	4,940	5,004	5,322	5,393	4,808	5,413	5,086	4,942	4,500	4,583	4,454	4,727	59,083
1995	5,298	5,511	5,935	6,015	5,553	6,348	5,733	4,805	3,815	3,981	3,913	3,712	58,401
1996	4,726	5,802	6,706	6,846	6,528	7,107	6,759	6,677	5,990	5,538	5,212	5,077	72,998
1997	5,368	5,400	6,155	7,120	6,936	7,820	7,244	6,625	5,668	5,180	5,081	5,369	73,935
1998	6,382	7,391	8,478	8,909	8,334	8,436	8,347	6,662	5,373	5,319	5,288	5,299	85,248
1999	5,959	6,532	7,242	7,429	6,995	7,726	7,312	7,036	5,871	5,980	5,100	5,268	72,093
2000	3,837	4,638	5,236	5,254	4,909	5,214	4,728	4,234	3,547	3,188	3,134	3,417	51,437
Avg 1940-2000	4,429	4,744	5,150	5,308	4,942	5,507	5,008	4,378	3,569	3,210	3,249	3,748	53,075
Avg 1950-1964	3,178	3,783	4,135	4,247	3,914	4,285	3,642	2,736	1,807	1,185	1,323	2,314	35,929
Avg 1986-2000	4,526	4,836	5,319	5,490	5,123	5,730	5,316	4,878	4,182	3,862	3,722	3,814	56,808

Estimated Baseflow - Gain-Loss Below Swanson Reservoir to McCook Gage, Nebr
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955		-365	522	583	587	727	891	1,562	-2,011	-2,570	-2,396	-1,472	-13,779
1956	-811	-265	-208	-639	-617	-230	434	1,980	-2,390	-3,598	-3,850	1,040	-17,450
1957	-2,268	-1,189	-634	-498	-186	234	-297	-1,961	-3,070	3,884	-3,487	1,828	-10,086
1958	780	-114	158	54	89	350	217	-314	1,181	-2,533	2,474	-821	-7,419
1959	190	-208	218	-191	45	548	823	918	703	250	129	377	2,998
1960	585	688	587	200	105	352	354	126	0	0	85	249	3,329
1961	336	315	358	438	452	547	563	804	454	181	201	380	5,023
1962	724	518	447	469	531	825	705	250	0	0	0	0	4,465
1963	0	0	0	0	184	578	736	893	485	173	0	0	2,830
1964	118	346	459	448	541	883	1,068	1,227	1,047	643	311	101	7,202
1965	0	0	51	155	382	819	858	546	481	800	853	922	5,955
1966	1,024	1,131	1,188	1,009	847	252	188	803	778	786	781	757	9,083
1967	810	818	887	879	772	787	685	819	648	878	843	539	9,141
1968	436	479	804	774	859	1,041	969	776	485	173	141	413	7,151
1969	549	833	857	1,218	1,383	1,743	1,733	1,824	1,417	1,310	927	302	13,725
1970	278	817	883	816	462	874	883	566	396	137	0	0	5,801
1971	288	786	1,068	1,068	758	295	240	771	903	886	586	536	7,585
1972	824	756	853	222	184	850	780	823	852	883	647	530	7,201
1973	508	414	502	739	926	1,365	1,186	414	779	736	880	956	8,987
1974	1,220	1,844	1,884	1,792	1,361	1,086	883	459	254	80	191	559	11,245
1975	858	989	866	742	833	868	1,002	1,131	1,154	1,217	927	302	10,830
1976	51	151	472	1,017	1,377	1,648	1,793	1,444	907	323	0	0	9,364
1977	0	0	179	547	827	1,303	1,822	2,021	2,040	1,911	1,714	1,474	13,837
1978	1,233	812	883	712	932	1,674	1,720	1,261	785	468	213	70	10,596
1979	70	204	295	319	583	1,331	1,450	1,058	753	643	516	586	7,822
1980	484	773	800	483	521	1,084	1,245	1,185	835	297	0	0	7,885
1981	184	541	658	467	498	952	1,303	1,722	1,712	1,454	1,075	815	11,184
1982	874	1,187	1,224	706	580	1,081	1,270	1,286	818	328	212	821	10,051
1983	982	1,188	1,181	855	709	1,010	1,075	1,096	807	710	445	146	10,285
1984	101	297	820	1,882	1,982	2,184	1,912	1,527	896	479	388	704	13,012
1985	1,031	1,236	1,342	1,218	1,125	1,443	1,430	1,327	1,034	880	578	726	13,186
1986	847	829	850	829	734	800	758	781	553	187	101	297	7,556
1987	423	430	720	1,287	1,426	1,644	1,488	1,171	902	-153	-348	80	8,726
1988	472	783	883	881	889	1,122	1,111	782	435	156	145	426	7,716
1989	587	474	819	957	946	871	832	1,036	836	297	146	426	7,986
1990	726	971	1,106	1,034	942	1,144	1,029	777	218	-620	-867	-452	8,009
1991	-59	348	582	804	872	1,027	1,069	945	635	228	0	0	6,049
1992	157	482	825	588	695	1,113	1,088	785	422	190	151	444	6,870
1993	484	151	220	879	933	1,300	1,223	883	785	1,113	1,148	878	9,783
1994													
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	336	488	595	604	642	917	901	719	437	122	25	172	5,993
Avg 1950-1964	252	37	44	-30	54	336	274	141	580	-1,137	1,148	584	3,190
Avg 1965-2000	448	667	792	830	881	1,128	1,071	880	562	171	60	262	7,587

Estimated Baseflow - Republican River - Gain/Loss Benkleman to Swanson, Ne
Values in ac-ft

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950											1,548	-1,483	-3,031
1951	1,452	1,283	1,106	851	-843	-697	-813	-518	-409	355	-794	234	-8,434
1952	-182	-53	0	0	193	-649	-812	-740	-587	-466	-584	952	-5,209
1953	1,098	-887	-803	-780	-882	-827	-818	-815	-706	-591	-801	748	-9,350
1954	-997	-1,233	1,236	-967	-836	-798	-824	-963	-824	-695	-874	1,079	-10,402
1955	1,713	2,295	2,387	1,729	-1,171	-1,094	-956	1,029	-913	728	-983	1,818	-16,804
1956	1,913	1,822	-1,280	-712	-378	-369	-478	-795	-873	794	-874	1,114	-11,199
1957	1,187	-886	-775	751	-818	-559	-383	-129	-134	-431	-817	-883	-7,090
1958	-543	-177	110	338	317	123	-226	-726	-1,037	-1,256	1,147	705	-4,979
1959	-539	-548	-443	-151	94	332	23	-883	-1,222	-1,060	-896	754	-6,040
1960	-803	-840	1,009	-907	-783	-733	-886	-886	-573	-388	-431	-709	-8,812
1961	1,100	1,487	1,787	1,786	1,684	2,015	-1,750	1,203	-981	1,285	-1,368	1,207	-17,834
1962	-1,163	-1,077	1,033	-920	-800	-733	-170	-544	-779	-947	-856	-504	-8,825
1963	-334	-290	-182	-87	-150	-58	-85	-272	-538	-950	1,132	-1,048	-4,518
1964	-858	-438	-305	-428	-353	-131	-81	-258	-258	-92	-272	-788	-4,274
1965	-1,102	-1,058	-1,161	-1,312	-1,110	-878	-804	-486	-559	-913	-1,138	-1,200	-11,925
1966	1,064	-584	-510	-802	-730	-491	-370	-515	-799	1,333	-1,440	1,061	-9,720
1967	-851	-563	-446	-428	-291	-113	-57	-181	-308	-473	-844	-872	-5,137
1968	-696	-227	0	0	0	0	-170	-544	-822	-443	-654	-1,255	-4,811
1969	-1,451	-1,065	-837	-866	-883	-287	-108	-349	-419	-691	-1,406	-1,818	-10,563
1970	-1,746	-954	-564	-480	-358	-379	-520	-891	-835	-736	-857	-1,305	-9,716
1971	-1,638	-1,663	-1,452	-819	-429	-438	-467	-818	-840	-453	-820	-1,094	-10,283
1972	-1,199	-786	-800	-589	-496	-481	-709	-1,317	-1,650	-1,877	-1,711	-1,150	-12,545
1973	-832	-629	-509	-417	-257	-100	0	0	-150	-481	-576	-413	-4,362
1974	-128	-313	-464	-280	-701	-305	-259	-92	-134	-431	-725	-978	-462
1975	-872	-284	-190	-564	-859	-639	-644	-516	-480	-537	-853	-536	-8,415
1976	-553	-536	-420	-143	-231	-778	-526	-538	-858	-744	-857	-719	-5,737
1977	-820	-859	-808	-576	-368	-303	-181	-85	-119	-381	-571	-860	-5,711
1978	-883	-581	-530	-480	-424	-600	-381	-135	-185	-531	-833	-443	-5,406
1979	-900	-1,915	-2,252	-1,883	-917	-199	-82	-718	-780	-277	-144	-422	-10,295
1980	-564	-585	-532	-424	-137	-330	-103	-899	-1,256	-1,027	-1,108	-1,514	-7,618
1981	-1,887	-1,418	-1,345	-1,330	-1,150	-1,185	-818	-290	0	0	-251	-737	-10,189
1982	-873	-553	-394	-345	-187	-3	-37	-378	-705	-1,086	-1,077	-819	-8,271
1983	-487	-635	-365	-343	-686	-880	-560	-113	-482	-810	-856	-1,494	-2,450
1984	-1,982	-2,121	-1,995	-1,377	-758	-282	-141	-454	-510	-343	-454	-859	-11,290
1985	-825	-536	-364	-355	-303	-301	-313	-410	-866	-822	-1,080	-1,237	-7,196
1986	-1,048	-342	0	0	-44	-157	-138	-898	-1,187	-1,092	-1,111	-1,254	-8,867
1987	-1,423	-1,442	-1,257	-704	-462	-714	-748	-670	-804	-842	-742	-887	-10,306
1988	-1,085	-1,205	-1,112	-879	-477	-825	-696	-899	-821	-844	-748	-1,222	-9,982
1989	-1,422	-1,174	-958	-851	-546	-850	-1,045	-1,283	-1,251	-1,080	-1,044	-1,130	-12,445
1990	-1,121	-871	-787	-787	-731	-859	-834	-813	-715	-837	-840	-1,315	-10,310
1991	-1,575	-1,429	-1,319	-1,096	-778	-598	-421	-392	-498	-823	-1,100	-1,294	-11,326
1992	-1,328	-1,024	-818	-603	-433	-402	-407	-528	-829	-788	-958	-1,117	-9,032
1993	-1,186	-1,019	-858	-581	-317	-123	0	0	-141	-454	-564	-418	-5,861
1994	-384	-344	-318	-256	-216	-291	-417	-894	-831	-1,009	-821	-268	-5,793
1995													
1996													
1997													
1998													
1999													
2000													
Avg 1940-2000	-1,034	-880	-785	-819	-417	-366	-375	-584	-850	-712	-827	-952	-8,074
Avg 1950-1964	-888	-943	-871	-674	-512	-540	-559	-883	-703	-703	-810	-808	-8,416
Avg 1965-2000	-1,174	-983	-825	-896	-435	-479	-520	-659	-720	-787	-880	-990	-9,047

Bar Baseflow - Gain-Loss Cambridge Gage to Orleans Gage, No. (gain includes inflow from several tributaries)
Values in cfs

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948		391	331	-113	0	0	300	992	1,485	2,020	2,018	1,447	9,098
1949	-927	302	280	858	1,044	1,156	1,056	952	849	231	-95	280	4,819
1950	387	375	362	-310	-197	77	0	0	256	-830	1,075	842	4,815
1951	-815	577	493	-509	360	-140	0	0	0	0	325	954	4,173
1952	1,083	-578	266	-90	0	0	197	831	943	1,227	1,998	2,305	8,015
1953	2,319	-1,435	802	273	-177	423	889	1,054	1,185	1,370	1,531	1,828	13,266
1954	1,704	-1,542	-1,483	-1,309	-915	540	428	777	915	930	1,095	1,399	-13,017
1955	1,832	-1,598	-1,635	1,583	1,084	422	165	531	-1,252	-2,502	2,723	1,823	-16,950
1956	1,931	-2,800	-3,010	-2,241	1,323	492	358	-1,148	-1,568	1,755	1,828	1,186	19,439
1957	1,289	1,718	1,956	-1,808	-1,348	970	506	181	118	381	959	824	17,434
1958	815	-449	-435	-533	-534	807	811	-1,309	-1,808	-1,878	-1,829	883	-11,286
1959	-781	-1,277	-1,438	-1,118	-702	383	340	702	-1,312	-2,348	2,583	1,974	-14,975
1960	1,462	832	521	453	194	245	217	326	268	390	36	1,310	4,518
1961	1,723	1,004	807	439	240	82	58	141	116	15	85	21	3,681
1962	109	320	336	114	158	566	875	1,202	1,260	1,182	1,167	1,225	8,503
1963	1,180	818	517	178	329	1,181	1,404	1,153	489	591	1,095	852	4,678
1964	594	184	0	0	97	325	77	966	1,830	2,064	1,990	1,327	8,400
1965	798	260	0	0	149	524	884	1,323	1,674	2,136	2,329	2,215	10,177
1966	2,221	2,054	1,764	1,128	884	665	383	66	354	488	417	136	7,436
1967	0	0	213	852	984	1,547	1,807	1,378	1,402	1,910	1,878	1,279	12,851
1968	1,010	921	970	1,058	1,180	1,486	1,207	429	0	0	180	470	7,832
1969	852	631	583	378	240	1,485	1,984	1,848	1,589	1,344	1,384	1,733	9,333
1970	2,107	2,265	2,501	2,587	2,405	2,730	2,130	1,012	27	801	1,075	334	15,451
1971	0	0	0	0	222	784	1,080	1,135	1,147	1,247	704	449	5,851
1972	581	375	754	486	598	1,224	1,558	1,784	1,581	1,191	723	236	9,918
1973	478	1,398	2,281	2,991	2,979	3,189	2,588	1,815	1,002	356	372	868	20,257
1974	1,230	1,180	1,365	1,738	1,586	1,415	704	331	426	1,108	1,237	1,295	4,359
1975	1,151	644	427	445	33	1,109	1,428	1,024	581	143	85	21	1,545
1976	187	550	1,012	1,529	1,662	1,737	1,292	539	303	1,217	1,419	837	4,731
1977	510	348	186	14	515	1,580	2,148	2,478	2,030	1,012	174	382	8,524
1978	492	180	174	534	144	1,064	1,807	1,519	939	26	735	1,068	1,785
1979	1,415	1,814	1,636	1,307	402	1,067	1,786	1,784	1,798	2,074	1,555	259	3,981
1980	89	473	880	1,011	1,266	1,927	2,071	1,946	956	813	1,880	1,413	8,529
1981	1,144	685	398	125	333	1,174	1,409	1,150	835	890	467	283	3,965
1982	459	978	1,360	1,577	1,781	2,544	2,859	3,142	2,822	2,233	1,414	481	21,841
1983	0	0	271	830	1,366	2,378	2,737	2,788	2,507	1,579	872	284	15,414
1984	545	1,012	1,702	2,508	2,630	2,842	2,489	2,552	2,140	1,485	844	275	20,871
1985	351	1,030	1,400	1,344	1,197	1,347	1,297	1,300	1,109	868	845	1,095	13,151
1986	1,106	826	865	1,460	1,783	2,540	2,859	2,538	2,012	1,345	895	742	18,873
1987	745	807	908	966	1,271	2,305	2,873	2,701	2,335	1,875	1,290	853	18,528
1988	581	933	1,210	1,323	1,310	1,448	1,230	841	811	685	515	188	10,824
1989	464	1,383	2,215	2,881	2,758	2,844	1,787	835	0	0	0	0	14,758
1990	197	577	819	859	1,121	2,031	2,182	1,781	885	1,050	1,555	704	8,881
1991	232	78	0	0	206	726	885	103	710	1,826	2,043	1,276	4,444
1992	970	971	478	649	1,391	2,037	1,719	811	85	272	449	592	2,592
1993	524	171	103	315	850	2,069	2,847	2,848	3,007	3,525	3,807	3,806	22,281
1994	3,462	2,297	1,380	470	404	1,425	1,919	2,042	1,248	384	858	48	13,323
1995	213	70	241	739	1,138	1,838	2,238	2,851	1,814	134	895	292	8,623
1996	210	817	977	1,229	1,452	1,900	2,237	2,784	3,204	3,982	4,469	4,649	27,850
1997	4,708	4,299	3,520	1,986	1,584	2,995	3,107	2,347	915	1,050	1,413	33	23,039
1998	702	718	578	187	502	1,770	2,058	1,490	853	303	0	0	9,171
1999	236	882	1,248	1,844	1,977	2,288	2,072	1,781	932	382	798	280	11,830
2000	284	834	1,300	1,588	1,744	2,104	1,929	1,493	588	703	1,048	342	9,783
Avg 1940-2000	61	128	302	445	585	1,184	1,244	960	448	65	192	184	5,194
Avg 1950-1994	1,003	883	809	891	433	137	77	343	814	467	1,118	1,068	8,131
Avg 1986-2000	750	854	1,000	1,102	1,298	2,005	2,075	1,774	1,150	764	128	429	12,967

Estimated BaseFlow - Gain-Loss Glade Rock Gage to Hardy Gage, Ne
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950												747	747
1951	1,130	1,272	1,607	2,019	2,213	2,827	2,569	1,539	703	250	337	990	17,556
1952	1,350	1,265	1,336	1,440	1,407	1,529	1,581	1,837	1,787	1,580	1,094	357	18,540
1953	124	384	593	778	839	1,052	1,036	874	669	209	66	280	6,992
1954	456	524	554	493	442	561	547	525	267	-203	-372	196	3,591
1955	36	335	382	130	179	468	390	160	-532	-750	-471	300	288
1956	533	174	0	0	0	0	118	372	450	382	152	-219	1,960
1957	-377	285	-191	-65	0	0	0	0	156	469	888	625	1,026
1958	502	227	75	25	95	339	456	493	573	778	858	215	4,431
1959	0	0	0	0	0	0	219	703	1,075	1,443	1,475	1,148	6,063
1960	1,010	921	881	827	837	1,113	928	391	487	1,387	1,848	1,295	11,678
1961	995	719	597	560	523	662	875	1,319	1,819	2,588	2,560	1,859	14,668
1962	1,184	946	662	225	254	696	1,175	1,180	857	305	0	0	7,684
1963	174	510	538	182	155	547	944	1,449	1,709	1,910	1,783	1,327	11,227
1964	876	286	0	0	173	582	786	852	844	229	174	310	5,113
1965	533	174	0	0	381	1,344	1,844	1,391	1,326	1,886	1,839	1,229	11,326
1966	1,011	839	872	1,035	900	729	888	979	1,108	1,201	1,079	746	11,187
1967	825	835	879	898	886	918	984	1,060	798	284	302	886	8,572
1968	1,355	1,558	1,411	732	273	102	0	0	257	828	1,119	1,083	8,717
1969	1,009	756	700	781	743	887	880	242	0	0	327	958	7,067
1970	1,318	1,254	974	332	0	0	191	812	874	1,379	1,432	1,106	9,572
1971	1,054	1,133	1,143	985	1,104	1,986	2,389	2,552	2,531	2,834	2,290	1,570	21,250
1972	1,378	1,672	1,896	1,263	809	827	978	1,556	1,941	2,344	2,187	1,456	18,211
1973	1,244	1,364	1,534	1,617	1,827	2,108	2,069	1,912	1,726	1,783	1,986	2,320	21,310
1974	2,722	2,890	2,970	2,755	2,278	2,254	2,051	2,141	1,968	1,848	1,578	1,209	26,655
1975	1,315	1,731	1,949	1,783	1,584	1,878	1,844	1,529	1,782	1,985	1,857	1,456	20,867
1976	1,389	1,405	1,543	1,645	1,486	1,354	1,328	1,665	1,828	2,033	1,928	1,506	19,090
1977	1,178	759	447	184	381	1,305	1,734	1,810	1,836	2,085	2,273	2,438	16,392
1978	2,351	1,808	1,174	803	580	1,410	1,790	1,911	1,787	1,580	1,259	841	16,973
1979	781	915	880	551	956	1,403	1,972	2,314	2,281	2,142	1,917	1,836	17,521
1980	1,524	1,377	1,197	837	947	1,784	2,219	2,499	2,277	1,818	1,292	789	18,540
1981	694	972	973	583	459	892	1,285	1,781	2,105	2,483	2,298	1,536	18,071
1982	825	?	-442	-491	-17	1,070	1,225	435	733	2,350	3,246	3,280	12,193
1983	2,934	1,860	1,087	383	-225	-783	-803	-285	586	1,814	3,134	4,360	13,992
1984	4,849	4,293	4,175	4,175	3,986	4,477	4,498	4,788	4,485	4,218	3,462	2,297	49,786
1985	1,858	1,286	881	300	479	1,889	2,822	3,534	3,697	3,512	3,289	3,081	26,010
1986	2,880	2,298	2,443	3,095	3,048	3,252	3,423	4,278	4,496	4,609	4,628	4,556	42,990
1987	4,387	3,926	3,078	2,686	2,290	2,542	2,811	3,621	3,814	3,824	3,285	2,239	38,072
1988	1,861	1,881	1,987	1,927	1,711	1,983	1,438	1,502	1,288	1,800	1,527	1,058	19,224
1989	853	787	952	1,281	1,345	1,572	1,405	1,105	983	1,149	1,183	1,053	13,848
1990	1,171	1,392	1,434	1,145	900	896	974	1,028	896	1,007	1,158	1,443	13,845
1991	1,609	1,456	1,383	1,182	1,087	1,364	1,351	1,190	786	284	124	364	12,172
1992	807	790	970	1,068	1,047	1,119	1,075	1,092	1,018	987	954	853	11,669
1993	1,220	1,621	2,086	2,394	2,358	2,712	2,466	2,067	1,800	1,250	784	256	20,812
1994	313	928	1,415	1,662	1,266	494	315	1,012	1,820	2,310	2,118	1,014	14,490
1995	474	389	830	1,143	1,212	1,197	1,149	1,332	1,515	1,898	2,167	2,285	15,403
1996	2,343	2,038	1,805	1,425	1,150	1,230	1,251	1,425	1,746	2,465	2,892	2,959	22,730
1997	3,142	3,041	2,982	2,560	1,981	1,877	1,515	1,898	2,100	2,378	2,322	1,929	27,514
1998	2,018	2,331	2,618	2,834	2,330	2,436	2,322	2,479	2,264	2,022	1,789	1,821	26,884
1999	1,941	2,515	2,964	3,068	2,580	2,268	2,175	2,887	3,005	2,858	2,537	2,074	30,921
2000	1,843	1,587	1,587	1,720	1,659	1,752	1,858	1,649	1,508	1,436	1,330	1,207	18,944
Avg 1940-2000	1,329	1,248	1,220	1,127	1,045	1,294	1,398	1,491	1,506	1,612	1,589	1,367	15,849
Avg 1950-1964	571	519	503	473	508	783	830	820	780	757	696	601	7,319
Avg 1986-2000	1,776	1,773	1,685	1,937	1,727	1,753	1,888	1,892	1,917	2,005	1,921	1,668	21,943

Estimated Baseflow - Gain-Loss McCook Gage to Cambridge Gage, Ne
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955			-1,658	-1,535	1,210	-950	-827	1,101	-1,773	3,089	-3,311	2,315	18,078
1956	1,784	-1,450	-1,219	-942	-669	601	629	905	-1,856	3,126	3,633	3,055	19,989
1957	2,520	-1,662	1,235	1,082	-807	-657	-730	-1,227	-2,127	3,717	-3,918	-2,329	21,908
1958	1,270	-414	-228	-893	-851	-253	-419	1,343	-1,982	-2,526	-2,366	1,482	-13,630
1959	1,107	-1,071	-836	-278	132	436	-56	-1,446	1,875	1,461	1,294	1,418	10,266
1960	-1,315	-812	-201	817	745	277	-192	-817	-832	-909	1,080	1,273	-5,571
1961	1,236	-780	-564	-498	-321	125	-85	-272	-629	1,240	1,550	1,500	8,603
1962	1,188	-381	-144	-443	-415	-182	0	0	-311	-895	1,342	1,278	-8,843
1963	-968	-322	0	0	0	0	-113	-363	-947	2,002	1,998	-833	7,554
1964	-358	-475	-384	-21	194	297	77	-477	-1,080	1,846	-1,972	1,397	-7,441
1965	1,188	1,176	-1,184	-1,088	-791	-519	240	-85	-800	-1,923	2,104	-1,045	-11,945
1966	-422	-138	0	0	0	0	-170	-544	-544	-194	0	0	2,011
1967	28	84	178	304	257	100	0	0	50	159	82	-182	1,060
1968	-451	-684	-634	-218	54	180	244	264	85	-473	-1,208	1,025	4,441
1969	867	7	261	89	34	121	122	44	-141	-454	-853	-708	-1,833
1970	472	126	331	113	102	359	241	281	-390	139	-172	-508	-899
1971	-400	205	218	-413	229	804	1,257	1,132	492	819	1,238	1,243	-32
1972	827	-145	248	248	305	494	314	-235	-587	-708	-868	1,037	2,875
1973	-888	-289	74	228	304	402	322	115	128	404	824	758	2,180
1974	880	891	942	845	784	732	481	171	-380	-1,220	-1,247	-467	2,582
1975	0	0	115	351	437	505	381	135	249	-786	-853	-808	-884
1976	-357	-116	82	251	312	325	335	401	91	-813	-742	742	-273
1977	67	195	205	70	280	866	1,298	1,321	598	-836	1,327	-748	2,110
1978	278	158	350	273	214	243	40	-368	-1,053	-2,085	2,414	1,955	-8,893
1979	1,681	1,286	1,187	1,152	-800	-324	-281	-788	1,281	1,779	1,727	-1,078	13,301
1980	-524	34	242	83	119	401	514	497	139	-664	-1,078	1,328	-1,492
1981	1,145	375	0	0	84	298	348	295	-25	-833	-700	-481	2,264
1982	-401	-403	-679	-1,204	-952	-131	378	437	-103	-1,298	1,481	-473	-8,281
1983	84	186	198	87	113	399	566	885	243	-708	-1,004	-584	223
1984	278	-91	0	0	134	451	567	524	-203	-1,685	-2,328	-1,984	-4,903
1985	-1,451	-473	-45	-137	-55	210	354	384	215	-137	-56	479	711
1986	898	519	500	592	578	639	472	168	-467	-1,497	-1,881	843	-425
1987	-356	184	457	500	519	868	658	532	-123	-1,350	-1,791	-1,338	1,438
1988	-754	9	312	108	128	428	567	557	23	1,077	1,247	-467	-1,395
1989	80	178	186	83	74	280	88	-473	-793	-827	-872	824	-2,782
1990	389	-130	110	338	504	782	780	800	-252	-1,844	-2,440	-1,901	3,853
1991	-1,296	-423	-12	-36	80	318	491	818	80	-1,185	1,754	1,588	-4,687
1992	1,188	-361	208	839	817	230	-129	-413	-745	-1,213	-1,080	-355	3,800
1993	-181	-533	-782	-811	-358	459	835	700	-27	-1,381	-1,292	320	-3,060
1994	952	519	398	540	820	843	818	885	422	150	-147	-451	5,348
1995	450	-147	179	547	823	1,288	1,575	1,907	1,221	-405	-1,208	1,025	4,308
1996	-742	-242	0	0	276	929	985	496	-83	-868	-573	295	-854
1997	583	387	228	78	240	856	971	644	336	119	0	0	4,455
1998	284	834	1,183	1,270	1,180	1,229	732	-175	1,027	-1,896	2,018	1,325	280
1999	-686	91	518	586	642	868	985	1,153	803	321	0		5,413
2000													
Avg 1940-2000	583	223	76	39	79	314	310	73	-396	-1,119	-1,311	973	3,849
Avg 1950-1964	1,305	-819	-487	-497	-302	174	-298	774	-1,321	2,083	2,233	1,987	11,958
Avg 1986-2000	247	60	251	315	418	701	701	498	-37	-917	1,151	718	-72

Estimated Baseflow - Republican River at (nr) Culbertson, Ne. (S830000)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	620	1,820	3,518	5,578	8,092	8,235	4,632	2,050	454	161	212	821	31,992
1941	2,148	4,606	6,772	8,186	7,723	7,751	6,331	4,913	4,564	6,099	6,871	6,738	72,699
1942	7,208	7,361	6,664	4,298	3,298	4,912	4,908	3,982	2,495	887	801	2,352	49,140
1943	4,272	6,128	6,947	8,058	4,889	5,013	4,696	4,978	3,720	1,323	0	0	48,022
1944	348	1,021	2,113	3,558	4,928	7,325	8,237	8,696	6,487	2,308	0	0	45,018
1945	711	2,066	3,708	5,389	5,703	6,408	6,208	6,320	4,827	1,645	438	1,267	44,537
1946	2,494	3,812	5,268	6,496	6,290	6,595	8,081	5,987	4,833	3,211	1,718	559	53,322
1947	1,799	5,282	6,983	5,310	4,902	7,211	8,169	8,994	7,458	4,386	1,994	850	62,817
1948	514	1,509	2,135	2,227	2,813	4,575	5,180	5,230	4,065	2,171	835	272	31,526
1949	922	2,707	3,543	3,112	4,682	10,195	12,312	12,323	8,936	3,177	323	948	63,179
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Avg 1940-1949	2,103	3,633	4,733	5,022	5,132	8,822	8,673	6,345	4,784	2,537	1,318	1,343	50,225

Estimated Baseflow - Republican River at Benkelman, Ne. (06834500)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947					5,358	8,803	8,779	7,085	6,044	4,391	3,851	4,578	44,889
1948	5,217	5,126	5,257	5,123	4,778	5,238	5,078	5,118	4,856	4,313	4,010	3,797	57,717
1949	4,019	4,183	4,800	4,920	4,718	5,524	5,752	8,481	6,578	5,868	5,878	6,566	67,098
1950	6,459	5,891	6,626	5,740	5,456	6,589	6,745	7,210	7,032	7,122	6,868	6,586	77,236
1951	6,561	6,022	5,973	5,813	5,335	6,291	6,498	7,066	7,158	7,872	7,933	7,909	80,201
1952	7,902	6,873	6,758	6,979	6,536	7,808	7,554	7,243	5,897	4,295	3,844	4,890	78,711
1953	5,117	4,482	4,759	5,534	5,579	6,709	6,550	6,285	4,984	3,329	2,586	2,872	58,775
1954	3,773	4,633	5,614	5,814	5,137	5,847	5,283	4,459	3,469	2,847	3,013	4,005	53,892
1955	4,725	4,802	4,807	4,881	4,493	5,094	4,748	4,374	3,718	3,310	3,428	4,086	52,277
1956	4,547	4,213	4,435	4,807	4,867	5,639	5,304	4,658	4,008	3,981	4,075	4,351	54,882
1957	4,996	5,397	5,928	6,036	5,750	6,983	7,080	7,409	6,529	5,260	4,573	4,585	70,522
1958	5,148	5,568	6,195	6,404	6,409	8,371	8,252	7,399	5,876	4,525	4,278	5,245	73,668
1959	5,929	5,595	5,917	6,354	6,169	7,377	6,934	6,095	4,972	4,306	3,813	3,563	67,043
1960	3,852	4,132	4,895	5,103	5,413	6,789	6,956	6,911	5,761	4,246	3,700	4,298	61,818
1961	5,067	5,456	6,121	6,508	6,099	8,847	8,269	5,593	4,540	3,772	4,091	5,536	65,889
1962	6,508	6,217	6,250	5,878	5,251	5,758	5,483	5,503	5,249	6,440	5,353	4,993	67,991
1963	5,228	5,390	5,633	5,405	5,023	6,157	5,992	4,529	3,440	2,873	3,291	4,380	57,089
1964	5,334	5,507	6,006	6,278	6,047	8,559	8,764	6,184	5,018	3,397	2,822	3,446	67,954
1965	4,070	4,203	4,545	4,674	4,335	4,928	4,957	5,360	5,575	6,278	6,414	5,842	61,302
1966	6,095	6,083	6,274	6,048	5,466	6,310	5,840	4,516	4,042	4,908	5,359	5,324	66,066
1967	5,618	5,517	5,929	6,313	5,735	5,999	5,803	6,369	5,838	4,818	4,053	3,758	65,807
1968	4,120	4,654	5,276	5,518	5,140	5,171	5,119	5,902	5,156	3,447	2,847	3,518	55,867
1969	4,263	4,578	5,101	5,374	5,068	6,820	5,905	6,456	5,748	4,463	3,848	4,036	60,661
1970	4,840	5,092	5,733	6,056	5,748	6,871	6,286	5,772	4,827	3,498	3,144	3,877	60,841
1971	4,440	4,904	5,356	5,386	4,896	5,484	5,262	5,235	4,363	3,206	2,979	3,765	55,356
1972	4,479	4,522	4,841	4,986	4,858	4,803	4,608	4,864	4,510	4,118	4,053	4,380	54,799
1973	4,956	5,281	5,883	5,886	5,801	7,284	7,280	8,737	5,484	4,225	3,885	4,567	69,613
1974	5,138	4,953	5,432	6,059	5,895	8,737	8,041	4,927	3,847	2,786	2,479	2,813	64,875
1975	3,454	3,833	4,803	5,056	4,818	6,781	5,673	3,847	4,804	3,125	2,443	2,709	51,918
1976	3,100	3,244	3,809	4,466	4,563	5,029	4,830	4,127	3,278	2,552	2,238	2,411	43,466
1977	2,784	3,019	3,535	4,042	4,097	5,044	4,881	4,466	3,804	2,802	2,464	2,843	43,372
1978	3,165	3,640	3,894	3,950	3,322	3,488	3,179	3,147	2,743	2,331	2,116	2,146	37,100
1979	2,154	1,858	2,075	2,841	3,123	4,805	4,848	4,546	3,905	3,470	3,221	3,212	39,857
1980	3,543	3,771	4,385	5,053	5,096	5,438	5,285	5,477	4,736	3,882	3,321	3,845	53,575
1981	4,359	4,325	4,849	4,904	4,920	6,344	6,434	6,264	5,416	4,816	4,101	3,986	60,302
1982	3,884	3,854	3,728	3,852	3,571	4,033	4,026	4,335	4,048	3,870	3,515	3,825	46,061
1983	4,075	4,351	4,710	4,710	4,400	5,225	5,220	5,345	4,504	3,256	2,907	2,883	51,084
1984	2,840	2,886	2,812	2,957	3,186	4,136	4,306	4,281	3,673	3,024	2,806	3,460	40,257
1985	3,920	3,823	4,021	4,135	3,821	4,310	4,250	4,471	4,301	4,300	4,248	4,158	48,758
1986	4,306	4,134	4,334	4,487	4,204	4,814	4,677	4,370	3,887	3,029	2,781	3,010	47,743
1987	3,877	4,343	5,028	5,284	4,846	5,251	4,942	4,931	4,022	2,721	2,391	3,147	50,580
1988	3,884	4,143	4,568	4,808	4,570	4,811	4,486	4,345	3,589	2,824	2,298	2,674	46,796
1989	3,373	3,898	4,568	4,882	4,282	4,741	4,488	4,455	3,883	2,952	2,384	2,909	46,203
1990	3,420	3,483	3,987	4,602	4,472	5,022	4,537	3,804	3,203	2,928	2,485	1,895	43,975
1991	2,983	2,595	3,281	3,519	3,437	4,141	4,043	3,874	3,441	3,224	3,001	2,809	38,534
1992	3,381	4,252	5,248	5,927	5,733	5,809	4,908	3,874	3,102	3,120	3,179	3,282	51,783
1993	3,659	3,858	4,247	4,447	4,354	5,411	5,400	5,264	4,520	3,773	3,336	3,302	51,571
1994	3,610	3,809	4,150	4,252	3,938	4,483	3,979	3,185	2,428	2,110	2,040	2,249	40,233
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Avg 1947-1994	4,404	4,512	4,905	5,134	4,918	5,880	5,503	5,335	4,581	3,890	3,636	3,808	50,034
Avg 1950-1984	5,411	5,333	5,849	5,829	5,591	8,568	8,371	8,081	5,177	4,430	4,249	4,704	65,761
Avg 1986-1994	3,457	3,857	4,379	4,668	4,426	4,943	4,566	4,245	3,517	2,909	2,653	2,813	46,482

Estimated Baseflow - Republican River at Man, Ne (6826000)
Values in ac-ft

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	1,677	3,822	5,702	6,937	7,544	9,113	7,800	4,699	2,132	758	801	2,352	53,307
1941	4,242	6,039	7,781	8,807	8,645	10,083	8,823	6,585	4,718	4,138	3,781	3,719	77,361
1942	5,023	7,122	9,439	11,284	11,154	12,585	11,030	8,600	5,719	3,338	3,178	5,415	93,894
1943	7,914	9,801	11,206	11,116	9,527	8,410	7,804	5,890	3,563	1,274	186	468	77,960
1944	1,841	4,072	6,140	7,646	8,648	10,994	11,148	10,659	8,864	6,410	4,315	2,709	83,274
1945	3,692	6,648	8,927	9,203	8,277	8,784	7,561	7,231	5,705	4,089	2,641	1,630	74,647
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Avg 1940-1945	4,065	6,254	8,196	9,166	8,965	10,158	9,044	7,269	5,092	3,331	2,480	2,719	76,787

Estimated Baseflow - Republican River near Bloomington, Ne (6850500)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	2,358	8,924	10,398	12,056	14,308	20,398	21,299	19,672	15,873	11,461	8,602	6,499	151,912
1941	8,199	9,944	13,217	18,167	21,258	29,684	32,987	36,331	33,738	29,298	28,018	24,462	284,300
1942	25,780	28,674	29,347	31,161	29,347	33,352	31,780	30,780	25,502	19,311	18,834	18,978	318,842
1943	23,341	27,260	30,755	31,032	27,294	28,127	24,498	21,886	15,851	9,185	4,080	1,331	244,410
1944	2,268	6,658	10,622	13,512	19,082	31,958	38,124	42,069	39,453	35,081	25,868	12,775	277,488
1945	10,834	17,906	24,751	29,365	29,082	33,069	33,878	38,018	33,787	24,983	15,157	5,534	296,203
1946	3,644	8,882	15,040	21,342	23,575	29,390	30,042	30,788	28,182	19,553	20,094	25,252	256,783
1947	34,136	33,680	36,047	37,864	35,414	39,701	37,843	37,809	31,143	22,527	14,000	8,735	399,899
1948	7,570	15,567	21,351	23,288	23,459	28,788	25,787	24,495	20,900	17,877	12,917	8,579	226,556
1949	8,898	12,403	16,283	17,020	20,839	35,461	41,330	43,814	37,183	25,787			258,808
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Avg 1940-2000	12,563	16,588	20,781	23,496	24,396	30,743	31,763	32,524	27,917	21,508	15,998	12,568	288,028

Estimated Baseflow - Republican River near Hardy, Ne. (8983000)
(values in sc-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	832	2,441	4,022	5,344	10,281	21,828	24,695	21,767	17,845	15,581	13,945	13,227	151,608
1941	12,015	8,653	9,538	13,994	17,043	24,495	29,162	35,576	34,996	31,399	28,597	27,060	272,548
1942	28,093	28,020	29,815	30,078	27,939	32,286	32,718	35,469	32,240	26,950	25,280	27,888	356,353
1943	30,979	31,289	33,302	33,888	31,438	36,159	32,874	27,821	19,488	10,760	4,813	2,635	295,445
1944	2,734	4,758	7,469	10,451	17,270	32,327	40,392	45,961	42,635	35,325	26,208	16,437	281,966
1945	15,171	20,334	25,364	28,223	28,058	34,046	35,503	38,639	33,758	24,182	17,027	13,443	313,945
1946	13,114	14,298	19,382	27,180	28,348	31,847	29,675	27,652	22,981	18,659	17,217	18,478	269,009
1947	24,186	31,580	38,277	41,136	39,080	44,828	43,264	43,292	37,387	30,393	20,845	10,184	404,314
1948	7,358	11,318	14,997	17,272	18,075	21,197	21,962	23,740	22,888	22,247	17,197	8,133	206,362
1949	8,884	12,463	17,088	19,484	22,249	33,180	38,966	45,481	41,503	31,696			
1950													
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Avg 1940-2000	14,137	16,513	19,905	22,703	23,978	31,179	32,923	34,562	30,570	24,739	19,023	15,258	283,508

Estimated Baseflow Rock Creek at Parks, No. (8824000)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941		840	917	928	825	871	827	887	823	800	790	796	9,284
1942	847	829	871	891	818	909	864	853	775	735	729	781	9,850
1943	838	858	885	828	895	706	843	851	831	888	882	870	9,753
1944	722	748	803	811	753	784	742	753	717	730	705	844	8,914
1945	882	732	803	822	744	804	781	834	795	787	725	870	9,159
1946	897	718	758	873	813	875	808	780	806	851	800	728	9,094
1947	806	800	838	847	773	883	828	831	786	736	714	703	9,508
1948	774	830	801	904	851	921	884	887	829	823	818	817	10,240
1949	883	907	875	986	910	1,007	950	926	828	786	758	808	10,713
1950	878	856	901	822	838	914	884	863	818	840	850	849	10,387
1951	895	874	903	895	809	908	878	896	850	851	858	872	10,487
1952	922	883	924	927	877	956	900	857	781	721	707	723	10,198
1953	788	797	850	885	786	909	881	823	745	733	732	745	9,643
1954	837	904	958	935	810	951	805	842	791	753	742	782	9,909
1955	828	834	884	892	818	920	886	928	841	742	707	743	10,033
1956	824	847	900	897	837	882	879	784	716	734	732	712	9,707
1957	789	805	881	856	795	939	945	987	918	850	805	789	10,319
1958	853	888	949	948	959	996	956	921	838	826	822	829	10,684
1959	886	885	924	918	827	924	859	887	794	895	817	578	9,637
1960	864	798	933	996	943	995	919	869	788	725	682	680	9,970
1961	743	786	854	868	796	906	873	870	748	800	578	895	9,317
1962	810	825	874	874	790	874	844	887	808	777	748	729	9,822
1963	759	740	780	807	756	872	821	780	856	823	806	871	9,832
1964	756	766	837	863	865	930	874	839	756	730	820	868	9,814
1965	723	786	821	799	720	820	780	784	758	811	850	869	9,512
1966	917	877	862	780	868	744	722	746	722	746	775	807	9,396
1967	869	852	885	885	781	818	772	807	775	779	729	630	9,583
1968	841	877	732	736	686	784	743	757	694	644	646	703	8,434
1969	788	804	856	859	784	855	814	828	789	738	732	755	9,585
1970	815	810	847	844	785	858	814	794	716	678	688	780	9,419
1971	877	882	807	833	732	835	818	840	783	887	899	710	9,540
1972	782	785	817	799	738	789	780	777	740	747	746	739	9,220
1973	791	802	860	884	802	870	821	824	749	698	687	723	9,512
1974	796	803	857	878	799	881	829	809	712	837	827	890	9,315
1975	770	771	816	826	756	844	826	864	781	677	831	853	9,212
1976	713	721	775	802	748	788	723	739	685	652	853	801	8,672
1977	744	718	748	788	894	749	718	744	713	718	714	701	8,724
1978	736	725	747	728	848	715	695	894	848	827	808	581	8,151
1979	818	804	832	840	588	858	848	877	834	801	587	598	7,480
1980	878	737	804	801	750	807	748	896	821	815	818	836	9,510
1981	680	886	701	720	881	738	714	738	894	880	858	835	9,286
1982	871	880	718	715	834	874	860	894	883	835	838	889	9,036
1983	718	892	890	840	579	899	881	881	582	501	479	531	7,491
1984	805	824	872	885	857	723	707	723	853	583	555	575	7,783
1985	826	827	827	556	474	529	528	575	578	808	832	850	7,007
1986	713	732	788	748	855	897	856	878	835	813	810	829	8,139
1987	898	834	880	881	814	853	805	906	951	537	537	554	7,291
1988	808	818	855	855	811	851	828	849	814	802	588	579	7,457
1989	817	824	881	884	584	842	810	825	586	803	598	577	7,408
1990	805	804	844	885	803	849	817	835	583	570	541	510	7,234
1991	533	542	590	622	583	882	853	883	831	560	542	524	7,145
1992	572	613	689	677	640	689	639	593	559	617	597	486	7,366
1993	507	560	628	656	607	675	642	639	580	583	567	515	7,157
1994	559	618	676	676	598	825	556	507	456	488	428	518	6,743
1995	577	584	629	620	557	620	581	587	537	514	498	488	6,810
1996	515	509	517	487	450	500	495	514	510	551	548	502	6,098
1997	501	479	505	533	473	471	443	489	471	450	429	412	5,655
1998	455	490	554	567	482	480	442	480	486	525	529	498	6,005
1999	508	499	506	478	395	385	341	343	315	297	303	333	4,701
2000	387	381	419	508	512	533	481	372	314	340	321	283	4,772
Avg 1941-2000	717	731	778	780	711	777	740	743	696	693	651	658	8,820
Avg 1950-1964	814	833	880	909	829	919	877	867	787	745	728	736	9,922
Avg 1986-2000	563	586	605	618	559	595	559	559	524	523	512	483	6,865

Estimated Baseflow - Sappa Creek near Beaver City, Ne (6848200)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	0	0	0	0	0	0	0	0	0	0	0	0	0
1941	0	0	0	0	0	0	34	108	156	188	209	215	912
1942	729	722	744	774	780	954	973	966	984	979	962	938	3,837
1943	944	938	956	965	947	419	405	979	905	225	134	44	3,663
1944	0	0	9	27	80	225	307	368	396	458	456	455	2,775
1945	473	454	457	435	379	411	388	392	342	283	185	80	4,282
1946	5	22	37	49	60	91	58	64	48	49	37	12	585
1947	96	781	421	486	487	577	581	542	482	448	327	130	4,838
1948	84	118	183	196	203	225	212	198	170	157	111	36	1,850
1949	8	22	38	54	103	237	352	520	583	633	558	453	3,520
1950	415	389	383	357	329	407	408	403	372	398	354	336	4,519
1951	350	351	348	305	275	350	412	534	653	853	985	970	6,367
1952	1,025	1,001	1,033	1,021	941	968	878	780	580	390	185	80	8,814
1953	10	31	82	102	129	185	206	223	193	141	83	27	1,383
1954	8	22	47	79	92	118	102	89	36	13	0	0	583
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	7	24	37	51	59	59	237
1958	80	55	83	78	89	129	140	151	147	147	106	95	1,201
1959	0	0	7	23	40	78	77	51	27	10	0	0	311
1960	0	0	0	0	32	108	147	181	142	107	85	21	784
1961	0	0	0	0	0	0	8	27	27	10	0	0	73
1962	0	0	0	0	11	40	52	51	50	58	56	42	361
1963	46	62	71	85	56	81	54	43	27	10	8	23	526
1964	35	36	45	51	57	77	80	77	54	19	0	0	535
1965	0	0	0	0	15	54	87	80	106	223	342	447	1,314
1966	609	759	904	969	886	835	766	543	373	330	254	154	7,483
1967	118	128	178	258	235	171	140	191	221	258	231	146	2,275
1968	145	206	265	293	261	217	150	94	45	18	0	0	1,697
1969	15	44	78	107	157	284	323	313	234	115	37	12	1,718
1970	0	0	18	35	83	80	98	98	82	29	0	0	469
1971	0	0	13	41	54	69	78	96	77	27	0	0	457
1972	0	0	10	51	53	87	91	78	51	18	0	0	418
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Avg 1940-2000	123	138	159	173	173	210	211	213	193	180	156	124	2,053
Avg 1950-1964	130	130	137	150	137	169	172	172	156	143	128	105	1,714

Estimated Baseflow - Sappe Creek near Stamford, Nb. (6847500)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946					115	184	184	203	175	123	148	253	1,386
1947	407	507	765	841	971	1,187	1,136	1,061	882	657	491	413	9,478
1948	486	594	718	780	864	559	410	331	251	210	138	45	5,186
1949	23	87	83	85	84	178	241	308	351	415	518	850	2,982
1950	777	806	870	888	807	884	858	807	867	918	925	913	10,440
1951	985	1,016	1,068	1,100	1,101	1,465	1,534	1,558	1,513	1,607	1,663	1,675	16,305
1952	1,784	1,785	1,808	1,728	1,490	1,396	1,155	967	739	521	297	97	13,784
1953	51	151	285	442	504	635	640	631	544	452	297	97	4,728
1954	21	62	98	123	156	256	256	186	109	39	0	0	1,306
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	36	107	152	181	188	224	285	306	308	328	244	158	2,652
1959	138	183	199	230	264	394	392	313	195	80	0	0	2,358
1960	0	0	0	0	0	0	0	0	3	9	74	47	84
1961	67	80	84	71	98	186	253	332	357	340	278	81	2,220
1962	0	0	30	91	140	226	273	319	348	406	482	567	2,883
1963	884	890	872	537	427	485	445	392	283	94	26	75	4,770
1964	118	141	245	420	852	1,087	1,122	842	524	259	83	27	5,531
1965	0	0	15	46	94	196	259	314	378	501	825	732	3,160
1966	856	891	856	962	869	956	895	867	787	764	708	825	10,136
1967	835	853	705	727	668	738	736	815	802	802	745	637	8,663
1968	815	595	612	606	572	670	585	531	383	129	0	0	5,738
1969	91	151	218	236	268	407	483	587	487	294	198	125	3,455
1970	180	311	385	348	389	522	526	457	304	108	0	0	3,529
1971	0	0	0	0	51	179	247	273	206	74	0	0	1,033
1972	0	0	0	0	82	207	257	228	154	55	0	0	983
1973	0	0	42	128	211	398	440	478	383	129	0	0	2,181
1974	85	191	331	470	528	650	601	387	195	88	0	0	3,517
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	58	194	223	160	91	32	0	0	758
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	169	568	710	648	445	156	0	0	2,698
1985	0	0	0	0	118	417	527	486	336	118	0	0	2,002
1986	14	40	97	183	286	510	529	402	240	85	0	0	2,385
1987	29	75	158	355	405	461	430	395	272	97	0	0	2,702
1988	57	189	258	302	298	303	228	109	32	11	0	0	1,786
1989	0	0	4	14	32	72	72	38	14	5	0	0	251
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	34	121	185	180	193	230	456	859	2,239
1994	1,250	1,483	1,643	1,545	1,347	1,485	1,307	1,074	801	615	430	270	13,261
1995	304	494	732	975	1,077	1,392	1,336	1,128	838	587	384	244	9,497
1996	262	405	566	706	794	993	1,018	1,015	981	1,051	1,102	1,129	10,023
1997	1,189	1,180	1,181	1,144	946	879	871	687	528	326	294	272	8,708
1998	801	1,135	1,563	1,789	1,810	2,283	2,151	1,777	1,172	514	148	143	15,089
1999	324	862	952	1,127	1,173	1,477	1,523	1,574	1,325	939	585	255	11,896
2000	300	862	891	918	851	870	874	377	154	58	0	0	5,749
Avg 1946-2000	227	285	341	373	377	477	499	428	342	257	203	189	3,944
Avg 1950-1964	309	331	367	386	387	481	481	456	382	336	288	250	4,470
Avg 1986-2000	288	420	536	605	604	723	674	571	423	295	218	211	5,570

Baseflow: South Fork Rap nr Bandelaman, Ne (6827500) (Stream Gain Bonny to Bandelaman 5/51-2006; total 1940-48, 10/48-5/51 no gage)
Values in ac-ft

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	158	465	822	577	861	1,036	922	408	91	32	9	27	5,008
1941	337	915	1,361	1,580	1,774	2,555	2,269	1,219	591	573	540	497	14,210
1942	793	1,345	1,751	1,870	1,880	2,410	2,124	1,366	732	389	182	675	15,867
1943	1,204	1,825	2,372	2,661	2,452	2,505	2,005	1,398	770	274	0	0	17,466
1944	89	261	743	1,530	1,922	2,307	2,210	1,951	1,367	848	235	207	13,471
1945	520	1,128	1,570	1,727	1,718	2,108	2,169	2,288	1,861	1,104	843	561	17,398
1946	726	1,054	1,441	1,788	1,810	2,084	1,852	1,463	1,040	755	1,156	2,239	17,409
1947	2,964	2,990	3,100	2,991	2,689	3,072	2,922	2,796	2,085	1,040	344	112	27,107
1948	268	848	1,293	1,543	1,898	2,121	2,033	1,713	1,280	929	545	178	14,485
1949													
1950													
1951								775	512	311	322	556	2,480
1952	798	955	1,087	1,128	1,083	1,189	959	837	180	-403	-700	783	6,142
1953	756	608	-337	135	388	586	320	318	681	-799	885	-826	-3,691
1954	-877	-813	-371	-82	121	278	133	-324	-728	-1,148	-1,353	-1,309	-6,270
1955	-1,238	-987	-847	189	102	184	-98	-778	-1,081	-1,023	-1,014	-1,041	-7,742
1956	1,104	1,082	-843	-324	86	337	79	-754	-1,154	-1,193	-1,125	-955	-8,032
1957	681	-137	138	180	281	518	833	885	817	184	285	777	1,283
1958	-739	52	378	580	748	1,240	1,481	1,872	1,548	1,253	980	875	9,752
1959	809	700	884	1,099	1,188	1,487	1,183	445	-78	-321	-449	-454	8,291
1960	-295	14	211	291	484	850	978	885	256	-191	-415	-372	2,586
1961	-393	-428	-280	108	431	850	951	838	591	291	179	157	3,224
1962	182	275	427	629	700	871	849	782	497	58	-200	-223	4,855
1963	28	561	900	979	965	1,173	845	123	-278	-318	-281	-170	4,529
1964	-37	134	584	1,259	1,479	1,504	1,140	577	109	-203	-389	-357	5,800
1965	-372	-398	-293	112	10	78	-66	-443	-528	-349	1	-486	-1,957
1966	1,013	1,486	1,787	1,758	1,484	1,431	938	241	-174	-258	-248	-136	9,319
1967	106	480	836	1,128	1,145	1,243	1,037	740	375	12	-213	283	8,627
1968	-89	303	583	757	785	883	740	432	125	-141	-298	-318	3,750
1969	-204	80	277	578	456	698	853	504	232	-127	-332	-345	2,230
1970	-82	455	834	984	978	1,086	863	441	77	-182	-311	-283	4,871
1971	-244	-158	-58	78	272	636	791	818	516	-87	-372	-342	1,870
1972	-334	-302	-258	-280	-111	156	357	512	360	-82	-302	-345	-999
1973	-352	-308	81	871	1,446	2,305	2,284	1,671	1,051	817	308	175	10,148
1974	382	833	1,256	1,551	1,807	1,945	1,559	719	115	157	-301	292	9,197
1975	-292	-295	-41	420	849	851	788	522	229	-84	-258	-321	2,187
1976	357	322	-107	353	573	726	641	400	133	-126	-290	-331	1,273
1977	-352	-308	-327	-378	224	99	231	147	-12	-246	-383	-339	-2,077
1978	344	333	-309	235	-10	395	880	887	856	38	301	292	830
1979	-286	-252	-250	-280	-87	378	388	-111	-244	-8	14	201	809
1980	-229	-34	78	107	192	383	530	595	486	-69	-378	-384	1,380
1981	-217	182	424	590	830	877	953	942	757	471	187	115	5,582
1982	-55	359	594	808	825	881	832	986	671	53	-298	-318	5,018
1983	-74	461	899	1,184	1,467	2,229	2,333	2,100	1,344	236	-387	-410	11,382
1984	-419	-357	-40	589	1,185	2,025	2,287	2,181	1,431	243	-385	-331	8,370
1985	-98	347	883	905	946	1,119	1,060	984	581	-19	-320	-282	5,919
1986	-105	175	478	791	880	1,020	885	641	201	-405	-630	-427	3,501
1987	-82	437	795	944	922	1,020	918	798	433	-124	-424	-411	5,226
1988	-275	29	213	271	385	648	722	668	412	-83	-320	-309	2,401
1989	-150	188	488	734	746	749	582	380	178	10	-145	-258	3,488
1990	-158	213	846	1,128	1,244	1,377	1,291	1,210	742	-39	-457	-433	8,754
1991	-296	2	256	473	638	974	964	802	481	31	-117	57	4,267
1992	365	940	1,256	1,551	1,815	1,775	1,379	831	130	-34	-13	208	9,720
1993	456	867	1,005	1,315	1,356	1,888	1,625	1,545	1,185	832	181	-123	11,553
1994	15	801	939	980	807	1,075	841	677	298	-144	-381	-389	5,519
1995	-251	15	191	280	363	566	727	948	747	185	-187	248	3,358
1996	-150	210	382	296	347	586	601	416	180	-69	-136	-1	2,675
1997	257	820	883	1,010	931	944	727	444	107	252	448	446	4,785
1998	-327	-39	264	593	755	895	953	779	387	-189	-483	-439	3,288
1999	-301	1	310	833	736	844	718	484	145	-371	-457	374	2,465
2000	-284	-88	119	365	566	853	886	127	-212	-305	-346	-326	1,176
Avg 1940-2000	-27	287	538	764	861	1,153	1,082	772	400	17	187	-175	5,398
Avg 1950-1984	-344	95	183	444	617	858	730	969	15	248	-434	-428	1,500
Avg 1985-2000	-82	293	548	756	828	1,007	915	705	358	-66	288	281	4,678

Estimated Baseflow - Stinking Water Creek near Palisade, Na. (6838000)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950		1,990	2,043	1,945	1,829	2,311	2,293	2,188	1,843	1,579	1,472	1,549	21,019
1951	1,783	1,954	2,170	2,231	2,059	2,317	2,284	2,346	2,248	2,263	2,279	2,269	26,194
1952	2,483	2,458	2,675	2,778	2,856	2,874	2,583	2,142	1,821	1,254	1,139	1,310	25,964
1953	1,857	1,984	2,388	2,666	2,504	2,889	2,403	2,145	1,871	1,219	954	953	23,241
1954	1,350	2,003	2,490	2,804	2,346	2,456	2,221	2,117	1,892	1,075	851	1,047	22,221
1955	1,374	1,675	2,012	2,218	2,098	2,311	2,098	1,870	1,428	972	934	1,350	20,339
1956	1,885	1,741	1,825	2,067	1,958	2,095	1,883	1,896	1,383	1,242	1,135	1,080	19,590
1957	1,381	1,817	2,140	2,140	1,998	2,364	2,356	2,406	2,152	1,870	1,587	1,373	23,572
1958	1,555	1,951	2,286	2,380	2,248	2,680	2,534	2,268	1,948	1,667	1,788	1,727	25,212
1959	1,919	2,125	2,406	2,551	2,464	2,953	2,738	2,312	1,894	1,139	1,017	1,377	24,695
1960	1,841	2,186	2,532	2,618	2,531	2,798	2,662	2,611	2,151	1,584	1,288	1,323	26,157
1961	1,838	2,033	2,354	2,391	2,197	2,482	2,404	2,432	2,032	1,481	1,296	1,580	24,310
1962	1,992	2,179	2,449	2,563	2,389	2,726	2,703	2,837	2,592	2,619	2,491	2,327	29,929
1963	2,518	2,747	3,041	3,124	2,745	2,759	2,424	2,280	1,911	1,551	1,595	1,951	28,615
1964	2,315	2,369	2,815	2,821	2,768	3,094	2,753	2,193	1,818	1,288	1,178	1,311	26,337
1965	1,626	1,931	2,233	2,338	2,200	2,540	2,480	2,432	2,178	1,892	2,048	2,352	26,331
1966	2,865	2,714	2,871	2,884	2,814	2,903	2,556	2,078	1,673	1,615	1,710	1,859	28,262
1967	2,298	2,445	2,696	2,806	2,598	2,789	2,611	2,566	2,284	2,108	1,954	1,884	28,989
1968	2,097	2,392	2,744	2,913	2,737	2,788	2,488	2,268	1,820	1,373	1,243	1,471	26,280
1969	1,786	1,913	2,142	2,262	2,188	2,598	2,462	2,507	1,951	1,668	1,481	1,491	24,184
1970	1,758	2,171	2,550	2,673	2,516	2,902	2,847	2,256	1,733	1,342	1,180	1,315	25,058
1971	1,569	1,851	2,167	2,364	2,297	2,712	2,726	2,845	2,360	1,553	1,295	1,484	25,193
1972	1,851	2,119	2,279	2,110	1,978	2,312	2,252	2,140	1,881	1,738	1,592	1,466	23,717
1973	1,633	1,880	2,193	2,352	2,287	2,744	2,599	2,319	1,940	1,746	1,847	2,291	25,802
1974	2,551	2,430	2,823	2,886	2,897	2,872	2,582	2,370	1,989	1,329	1,104	1,244	26,583
1975	1,486	1,852	1,902	2,071	2,092	2,990	2,594	2,330	1,850	1,420	1,209	1,292	22,579
1976	1,434	1,549	1,872	2,260	2,285	2,338	2,081	1,849	1,445	1,078	826	1,024	20,121
1977	1,282	1,551	1,791	1,847	1,860	2,482	2,458	2,245	1,797	1,365	1,129	1,138	20,927
1978	1,294	1,440	1,560	1,504	1,428	1,812	1,867	1,914	1,591	1,094	901	766	17,073
1979	883	1,072	1,256	1,332	1,387	1,806	1,800	1,806	1,415	1,266	1,063	820	16,124
1980	1,050	1,352	1,601	1,656	1,658	1,980	1,803	1,770	1,369	950	751	837	16,879
1981	1,055	1,283	1,513	1,614	1,583	1,940	1,948	1,948	1,878	1,359	1,103	952	17,971
1982	1,089	1,381	1,639	1,722	1,590	1,751	1,897	1,789	1,594	1,373	1,305	1,412	18,322
1983	1,555	1,541	1,739	2,003	1,973	2,283	2,205	2,155	1,728	1,143	837	873	20,035
1984	1,037	1,208	1,472	1,718	1,758	2,084	2,149	2,313	1,986	1,438	1,077	982	19,272
1985	1,124	1,365	1,536	1,496	1,388	1,700	1,665	1,588	1,318	1,033	982	1,130	16,318
1986	1,286	1,272	1,525	1,800	1,690	1,987	1,764	1,595	1,253	913	745	783	16,843
1987	972	1,197	1,426	1,540	1,566	2,007	1,983	1,795	1,304	795	606	785	15,909
1988	1,105	1,441	1,658	1,605	1,532	1,775	1,746	1,727	1,449	1,104	895	1,153	17,287
1989	1,325	1,347	1,389	1,312	1,217	1,519	1,495	1,431	1,194	946	879	1,021	15,085
1990	1,218	1,324	1,500	1,614	1,541	1,780	1,881	1,488	1,128	708	541	870	15,183
1991	874	1,055	1,263	1,486	1,449	1,845	1,800	1,626	1,338	884	676	725	14,856
1992	918	1,139	1,369	1,492	1,451	1,542	1,378	1,179	1,013	1,038	1,089	1,108	14,691
1993	1,247	1,338	1,472	1,515	1,444	1,734	1,706	1,676	1,554	1,561	1,522	1,443	18,218
1994	1,536	1,608	1,751	1,813	1,661	1,827	1,650	1,462	1,195	1,028	930	927	17,383
1995	1,088	1,278	1,418	1,375	1,288	1,586	1,852	1,781	1,562	1,180	973	980	18,180
1996	1,121	1,257	1,379	1,358	1,331	1,588	1,535	1,405	1,234	1,201	1,254	1,305	18,068
1997	1,505	1,384	1,419	1,440	1,359	1,821	1,523	1,340	1,054	818	740	847	15,068
1998	1,036	1,202	1,387	1,470	1,366	1,517	1,374	1,210	972	801	727	786	13,828
1999	912	1,055	1,248	1,381	1,306	1,442	1,303	1,153	948	829	879	1,103	13,560
2000	1,323	1,378	1,478	1,478	1,378	1,482	1,289	1,087	791	584	481	448	13,129
Avg 1950-2000	1,521	1,721	1,953	2,053	1,955	2,234	2,113	1,978	1,638	1,321	1,188	1,272	20,917
Avg 1950-1984	1,618	2,064	2,368	2,471	2,322	2,594	2,421	2,253	1,870	1,532	1,369	1,504	24,519
Avg 1985-2000	1,164	1,285	1,447	1,520	1,452	1,668	1,578	1,480	1,199	940	866	843	15,542

Estimated Baseflow - Stinking Water Creek near Waurika, No. (08346500)
(Values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941	1,067	1,229	1,446	1,587	1,473	1,596	1,367	1,164	877	638	813	819	13,836
1942	1,081	1,214	1,438	1,808	1,485	1,527	1,371	1,318	1,106	881	839	1,000	14,845
1943	1,284	1,543	1,718	1,647	1,408	1,438	1,282	1,183	906	817	487	545	14,014
1944	722	834	1,111	1,157	1,147	1,325	1,282	1,214	989	739	586	556	11,782
1945	753	1,066	1,339	1,401	1,285	1,401	1,304	1,258	1,034	767	696	847	13,171
1946	1,026	1,112	1,271	1,384	1,278	1,314	1,189	1,181	970	744	728	940	13,123
1947	1,218	1,423	1,608	1,626	1,494	1,694	1,606	1,543	1,305	1,089	901	830	16,319
1948	1,037	1,400	1,654	1,654	1,510	1,528	1,342	1,187	964	878	756	642	14,574
1949	822	1,203	1,483	1,478	1,369	1,589	1,527	1,471	1,205	886	864	1,158	15,035
1950	1,435	1,525	1,640	1,625	1,468	1,644	1,510	1,364	1,148	1,029	833	878	16,197
1951													
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Avg 1941-1950	1,042	1,187	1,469	1,518	1,391	1,502	1,376	1,284	1,052	825	741	821	14,288

Estimated Base Flow - Thompson Creek at Riverton, Nb (6851500)
(values in ac-ft)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948							865	974	879	843	799	755	5,065
1949	862	1,013	1,160	1,200	1,119	1,278	1,258	1,398	1,308	1,174	1,148	1,240	14,158
1950	1,317	1,211	1,217	1,217	1,095	1,202	1,186	1,223	1,199	1,252	1,251	1,224	14,585
1951	1,270	1,236	1,301	1,343	1,234	1,389	1,328	1,371	1,295	1,271	1,278	1,312	15,805
1952	1,433	1,459	1,537	1,521	1,372	1,370	1,259	1,201	1,102	1,096	1,083	1,066	15,480
1953	1,120	1,102	1,199	1,305	1,273	1,341	1,280	1,235	1,101	1,009	988	1,048	13,931
1954	1,188	1,197	1,282	1,241	1,108	1,221	1,180	1,254	1,178	1,112	1,071	1,083	14,084
1955	1,145	1,170	1,260	1,297	1,187	1,311	1,287	1,373	1,337	1,350	1,318	1,247	15,276
1956	1,276	1,252	1,298	1,285	1,200	1,292	1,223	1,193	1,065	994	917		12,995
1957													
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1959													
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1965													
1966													
1967													
1968													
1969		1,225	1,270	1,252	1,127	1,280	1,217	1,239	1,184	1,243	1,254	1,226	13,506
1970	1,291	1,285	1,356	1,374	1,243	1,361	1,301	1,328	1,214	1,125	1,085	1,103	15,060
1971	1,211	1,255	1,346	1,359	1,235	1,374	1,330	1,388	1,290	1,295	1,219	1,158	15,412
1972	1,222	1,251	1,324	1,314	1,233	1,337	1,298	1,324	1,211	1,118	1,080	1,114	14,821
1973	1,208	1,211	1,279	1,291	1,187	1,351	1,310	1,317	1,213	1,181	1,181	1,218	14,908
1974	1,349	1,383	1,483	1,511	1,387	1,489	1,387	1,344	1,200	1,121	1,071	1,063	15,789
1975	1,152	1,192	1,282	1,300	1,177	1,287	1,233	1,285	1,213	1,234	1,178		13,515
1976													
1977													
1978		1,286	1,328	1,316	1,198	1,355	1,302	1,280	1,189	1,097	1,050	1,037	13,425
1979	1,118	1,154	1,239	1,257	1,205	1,482	1,455	1,380	1,208	1,096	1,038	1,032	14,662
1980	1,103	1,108	1,195	1,250	1,200	1,292	1,236	1,202	1,026	833	748	792	12,976
1981	859	840	887	914	850	969	976	1,061	1,055	1,093	1,101	1,077	11,[illegible]
1982	1,121	1,087	1,145	1,185	1,122	1,322	1,336	1,419	1,377	1,389	1,366	1,371	[illegible]
1983	1,436	1,395	1,433	1,408	1,239	1,320	1,247	1,282	1,183	1,039	991	1,033	[illegible]
1984	1,178	1,284	1,418	1,452	1,391	1,524	1,505	1,580	1,417	1,193	1,02[illegible]	958	[illegible]
1985	1,003	1,082	1,184	1,186	1,050	1,178	1,172	1,264	1,178	1,056	1,068	1,282	[illegible]
1986	1,383	1,216	1,208	1,238	1,119	1,205	1,192	1,327	1,190	919	809	887	[illegible]
1987	975	949	991	1,007	935	1,062	1,048	1,034	998	977	973	958	11,[illegible]
1988	1,048	1,115	1,238	1,310	1,256	1,333	1,210	1,068	936	893	905	874	13,308
1989	1,098	1,143	1,207	1,173	1,044	1,156	1,095	1,079	1,009	1,024	1,009	984	13,002
1990	1,031	1,078	1,186	1,188	1,083	1,199	1,142	1,140	1,065	1,080	1,032	983	13,187
1991	1,052	1,105	1,208	1,246	1,138	1,244	1,185	1,200	1,078	980	887	873	13,171
1992	954	1,009	1,103	1,134	1,077	1,154	1,061	1,034	948	956	951	930	12,333
1993	1,009	1,083	1,178	1,244	1,189	1,328	1,312	1,374	1,347	1,411	1,420	1,375	15,229
1994	1,452	1,468	1,560	1,581	1,430	1,561	1,488	1,450	1,340	1,324	1,282	1,223	17,139
1995	1,273	1,267	1,285	1,196	1,064	1,311	1,328	1,367	1,168	875	754	834	13,736
1996	985	1,029	1,107	1,085	1,041	1,185	1,194	1,320	1,284	1,247	1,195	1,135	13,776
1997	1,153	1,098	1,116	1,098	1,043	1,299	1,308	1,291	1,186	1,098	1,021	976	13,855
1998	1,005	979	1,032	1,089	1,038	1,281	1,309	1,353	1,253	1,171	1,089	1,049	13,638
1999	1,141	1,232	1,378	1,455	1,296	1,315	1,199	1,221	1,152	1,148	1,106	1,039	14,687
2000													
Avg 1940-2000	1,154	1,174	1,248	1,285	1,185	1,290	1,242	1,266	1,171	1,111	1,073	1,072	13,927
Avg 1950-1984	1,247	1,232	1,296	1,316	1,203	1,301	1,242	1,264	1,182	1,154	1,131	1,158	14,561
Avg 1985-2000	1,110	1,125	1,198	1,217	1,125	1,269	1,219	1,234	1,138	1,075	1,032	1,014	13,745

Estimated Streamflow - Turkey Creek at Killaloe, Ont (02KA019)
(values in cms)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Yrly
1940													
1941													
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1977													
1978		140	148	155	188	240	281	270	222	143	84	54	1 885
1979	59	78	89	102	131	254	299	299	247	244	211	150	2 095
1980	151	182	234	258	272	335	345	344	288	204	134	87	2 838
1981	85	145	188	211	210	257	258	263	236	221	197	172	2 457
1982	183	234	283	255	252	341	378	419	382	311	238	174	3 436
1983	178	220	288	301	301	386	385	418	385	354	278	187	3 829
1984	151	207	268	313	348	450	478	482	429	342	249	180	3 895
1985	161	230	282	295	287	351	372	417	408	368	357	318	3 854
1986	333	358	414	463	453	531	516	506	418	308	291	208	4 795
1987	228	274	335	384	386	511	533	514	520	487	428	320	4 895
1988	328	410	482	533	527	583	587	570	496	415	357	337	5 818
1989	370	410	482	498	470	566	558	533	457	388	323	287	5 290
1990	284	339	418	488	487	572	573	595	500	348	257	241	5 105
1991	278	333	386	441	449	570	568	605	454	188	88	128	4 497
1992	219	315	407	478	483	518	487	454	368	344	282	240	4 582
1993	295	305	385	484	505	586	580	631	634	554	727	778	6 569
1994	836	853	919	948	886	1 020	990	898	723	561	457	428	9 479
1995	681	786	881	718	677	774	808	828	654	617	457	320	7 869
1996	356	501	633	696	662	755	754	806	804	651	661	505	9 536
1997	860	864	865	1 008	999	1 142	1 107	1 091	878	571	429	466	10 449
1998	552	620	725	808	781	802	800	845	651	725	578	432	8 817
1999	473	643	782	854	811	923	950	1 014	980	857	680	758	10 017
2000	786	861	865	1 012	896	1 127	1 058	944	758	608	488	417	10 017
Avg 1978-2000	348	398	494	548	502	594	594	601	530	447	371	321	5 481

Estimated Baseflow: Turkey Creek at Neponset, Ne. ([illegible])
(Values in cfs)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948							853	594	494	438	393	371	2,951
1949	441	549	668	739	724	855	854	877	804	739	[illegible]	[illegible]	8,510
1950	811	831	886	713	667	764	737	729	858	808	582	525	7,880
1951	584	665	738	735	884	810	814	848	777	701	663	673	8,891
1952	744	784	871	927	888	930	837	748	818	538	470	428	8,788
1953	485	580	677	718	868	740	693	665	558	441	380	328	8,909
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Avg 1948-1953	[illegible]	642	728	786	726	820	786	744	651	577	519	487	7,289

[illegible]